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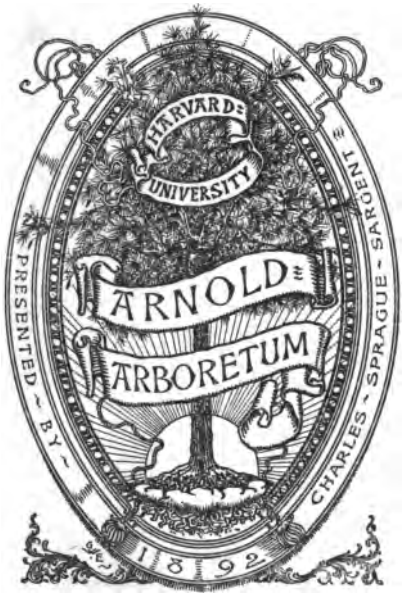

DEPOSITED AT THE HARVARD FOREST
1943

RETURNED TO J. P.
MARCH, 1967

TREES AND TREE-PLANTING.

WITH

EXERCISES AND DIRECTIONS

FOR THE

CELEBRATION OF ARBOR DAY.

PREPARED BY

JOHN B. PEASLEE,
SUPERINTENDENT CINCINNATI PUBLIC SCHOOLS.

WITH PREFACE

BY WARREN HIGLEY.

PUBLISHED UNDER THE AUSPICES OF THE
OHIO STATE FORESTRY ASSOCIATION,
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OFFICERS

OF THE

OHIO STATE FORESTRY ASSOCIATION

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PREFACE.

THE subject of this little pamphlet is one that is rapidly rising in favor with the business community and the political economists. From the attention that has been given it by the press, and the facts disseminated by societies like ours, the thoughtful, intelligent citizen who studies the causes of the decline in national resources—how countries once famous for their fertility of soil and salubrity of climate and dense population have become desolate wastes, unfitted for the habitation of man—how some countries have checked the rapid tendency to such desolation and ruin, and recovered their former prosperity—will see that the forests played the most important part in these causes; that their denudation was followed by the decline, and then the destruction of the national resources, while their replanting resulted in reclaiming, and in renewed production. The various and immediate uses to man of trees and their products have caused their rapid destruction, until the threatened dearth in this country is becoming alarming. This can be avoided only by convincing those who are most directly interested of the undeniable facts, and thereby inducing the people to better protect existing forests, and to take early steps to plant new ones for the benefit of themselves and of future generations.

In a country like ours, where the *people* own the land and where the farmer has to look to the products of the farm for his income, it is a question with him of *profit* as between the wood-lot and the cleared field, whether the wood shall remain to supply the fuel, the fence and necessary timber for home purposes, or whether it shall give place to the corn-field, the wheat-field, or the meadow. With good tillable soil, the *profit* is, no doubt, largely in favor of the open field, especially as compared with our native forests from which the most valuable trees have been culled, and only wood of an inferior quality left. But the result would be quite different with a forest planted and cared for according to the principles of forestry as practiced in Germany and France, as conclusively appears in the following pages. There is, however, scarcely a farm of a hundred acres in Ohio and the originally wooded States, but that from 20 to 25 per cent of its surface can be more profitably devoted to tree culture than to any thing else. In fact, there is much of the best farming country that is useless for crops, as the farmer knows, and yet is well adapted to the growth of trees. These comparatively useless tracts should be planted to the right kind of trees, and the whole farm thereby made productive, while the influence of such planting and nurture, in beautifying the landscape, in rendering the country more salubrious,

the climate more equable, the fruit crops surer, and the vegetable product larger, would greatly enhance the moneyed value of the land and render life far more enjoyable.

The importance of forestry has been recognized by the governments of Europe for more than a century past. Schools of forestry have been established, and its principles reduced to a science. These are the result of necessity. The widespread destruction of the forests so affected the climate and productions of the soil, and the wants and the manufacturing interests of the people, and the wealth and prosperity of the nation, that the governments were forced to legislate and prevent the threatened destruction which was found to surely follow the complete denudation of the forests. The most wholesome effects have resulted wherever a system of forestry has been introduced and followed. Unhealthy regions have been rendered salubrious; floods have been modified and partly controlled; crops have been rendered more certain; vast areas of waste-lands have been forested and rendered productive in wood and timber, whereby large revenues have been realized, and important interests subserved.

I know of no facts more convincing of the necessity for attention to forestry in this country than those found in our last census report, from which I take the following figures:

PARTIAL ESTIMATE OF THE CONSUMPTION OF FOREST PRODUCTS AS FUEL IN THE UNITED STATES DURING THE CENSUS YEAR ENDING MAY 31, 1880.

Number of persons using wood for domestic fuel, ... 32,375,074

ESTIMATED CONSUMPTION OF WOOD FOR DOMESTIC PURPOSES.

Number of cords for home use, . . .	140,537,439	Value,	$306,950,040
By railroads, ...	1,971,813	"	5,126,714
By steamboats, ...	787,862	"	1,812,083
In mining and amalgamating the precious metals, ...	358,074	"	2,874,593
In other mining operations, ...	266,771	"	673,692
In the manufacture of brick and tile, . . .	1,157,522	"	3,978,331
In the manufacture of salt, ...	540,448	"	121,681
In the manufacture of wool, ...	158,208	"	425,239
Total, ...	145,778,137	"	$321,962,373

CONSUMPTION OF CHARCOAL.

In the twenty largest cities—Bushels, . .	4,319,194	Value,	$521,316
In manufacture of iron, " . .	69,592,091	"	4,726,114
In the production of precious metals, ... " . .	97,687	"	29,306
Total, ...	74,008,972	"	$5,276,736

In this table Ohio is estimated to consume for domestic purposes, exclusive of what is used in manufactures, 8,191,543 cords of wood, with an estimated value of $16,492,574. Allowing an average yield of forty cords to the acre, it requires 204,788 acres of forest to supply the demand in this State one year for fuel alone.

The following are some of the statistics of the lumbering industry of the United States for the year ending May 31, 1880:

Capital employed,	$181,186,122
Number of hands employed—Males,	141,564
Females,	425
Children and youth,	5,967
Value of logs.	$139,836,869
Wages paid during the year,	31,845,974
Feet of lumber (board measure) produced,	18,091,356,000
Number of laths.	1,761,788,000
Number of shingles,	5,555,046,000
Number of staves,	1,248,226,000
Number of headings,	146,523,000
Feet of spool and bobbin stock (board measure),	34,076,000
Value of all other products,	$2,682,668
Total value of all products,	$233,367,729

The lumbering interest of Ohio for the year ending May 31, 1880, is estimated as follows:

Capital invested, $7,944,412; number of hands employed, 15,277; value of logs, $8,603,127; wages paid during the year, $1,708,300; feet of lumber (board measure), 910,832.000; number of laths, 50,625,000; number of shingles, 24,875,000; number of staves, 214,245,000; number of sets of headings, 25,779,000; value of all the lumber products of Ohio (estimated), $13,864,460. This, added to the estimated value of wood used for domestic purposes—to wit, $8,191,543—gives a total value of the product of the State for the census year of 1880, $22,056,003; and this consumption is rapidly increasing through the demands of our growing population.

A comparison of the census returns of 1870 and 1880 shows a decrease of wood lands in the belt including latitude 37 degrees to 40 degrees, through which runs the Ohio River, extending westward across the Mississippi River, of from 34 to 26 per cent, being greatest in Ohio and Indiana.

At the meeting of the Forestry Congress in Cincinnati, April, 1882, Dr. Franklin B. Hough, then chief of the Forestry Department, read a valuable paper on "Tree Planting by Railroad Companies," in which he says:

"We have in the United States about 100,000 miles of railroads. The number of ties to a mile range from 2,200 to 3,000, and in some cases as high as 3,500. If we assume an average of 2,500 to the mile, we have a quarter of a billion in use. They average eight feet in length, and about seven inches deep and eight inches wide, giving the contents of almost three cubic feet apiece, or in all 6,000,000 of cords. If piled cord-fashion, they would form a pile four feet high, eight feet wide, and 4,575 miles long. Placed end to end, they would span the earth fifteen times at the equator, or in one line would reach miles beyond the moon. Taking the average life of a tie at from five to eight years, and we shall need from 30,000,000 to 50,000,000 new ties a year for maintaining the present railroads of the country in constant use. Allowing 500 ties to the acre, we shall need to cut from 60,000 to 100,000 acres every year to meet this demand. To grow trees to the size necessary for ties will require an average of about thirty years, and we shall need, to keep up this supply, nearly 3,000,000 acres of forests, or about

2,500 acres for every hundred miles of road. This is equivalent to a belt of woodland twelve and one-half rods wide along the road, or about three times the right of way."

In a recent article on the condition of our forests and their effect upon the floods of 1883 and 1884, Dr. Hough says:

"Let us now see how these forest supplies stand, and how the future promises, with regard to their continuance in the United States. We have as our only data the census of different periods; and the returns of 1880 show that, of our States and Territories, 9 had reduced their woodlands to below 10 per cent; 5, to between 10 and 20 per cent; 8, to from 20 to 30 per cent; 11, to from 30 to 40 per cent; and 4, to from 40 to 50 per cent, when this census was taken. In 10 States of the South and South-west the proportion was 50 per cent or more, and in the whole United States the woodlands occupied 35 per cent of the whole reported area.

"In Ohio the returns made by assessors (which appear to be very reliable) show the tendencies of clearing in a very strong light, and taking three periods for comparison we get the following results:

	Acres of woodland.	Decrease from former period.	Percentage of woodland to total area.
1853	13,991,228	....	55.27
1870	9,749,333	4,241,895	38.51
1881	4,708,247	5,041,086	22.71

"In 1881, 601,136 acres, or about 3 per cent (not included in the woodlands), were lying waste.

"The amount of clearing, from 1870 to 1881, is shown to have been 5,041,083 acres, and at this rate it becomes an easy question to solve as to how long the remaining 4,708,247 acres will last. We have not figures to prove that these rates of clearing have been going on in the other states bordering upon the Ohio river, or supplying it by their drainage; but the connection between this denudation and the floods of the present and of recent years can not be mistaken. Last year the damages were estimated at $60,000,000. There may have been less damage done this year (although the flood was five feet higher), because there was less property to destroy. In a letter from a friend in Marietta we are told that four hundred houses floated past that place in the recent flood, which probably took off many that were not reached by the waters before.

"Nine years ago a million of dollars or more of property was destroyed at Rochester by a flood unquestionably occasioned primarily by the extensive clearings in recent years around the head waters of the Genesee River. The heavy rains and warm winds, which rapidly melted the snows and supplied the floods on that occasion, could not have had so immediate an effect in a wooded country.

"Passing from Winter floods, we find the other extreme in Summer droughts, which in recent years have become more frequent and distressing than were known in former years, and both may be traced unerringly to the same cause—the clearing-off of the woodlands which formerly tended to equalize these extremes and maintain a more uniform flow of waters throughout the year."

THE OHIO STATE FORESTRY ASSOCIATION.

THE origin of the State Forestry Association, together with a brief history of the popular movement that led to its organization, may be of interest in this place.

In November, 1881, a public reception was given by the citizens of Cincinnati to the von Steubens, while on their visit through the country, after having taken part in the centennial celebration of the

battle of Yorktown. Among them was Baron Richard von Steuben, the Royal Chief Forester of the German Empire, who made a most favorable impression upon those with whom he came in contact and deeply interested them by his talks on forestry.

In the early part of January following, a few of the gentlemen* who had been most active in this reception, met in my office and discussed, among other things, the duties of the Royal Chief Forester of Germany and the subject of forestry in general. The more we discussed the greater the interest became, and the more apparent it was that a popular movement should be inaugurated to bring the subject to the earnest consideration of the people. Before we separated it was resolved to call a meeting of some of the public-spirited citizens and put the ball in motion. Accordingly a committee was organized, and for the next three months the press of the country laid before the people the subject of forestry in its various important aspects.

The work of the committee culminated in a three days' meeting at Music Hall, April 25th, 26th, and 27th, at which most of the distinguished foresters of this country and Canada were present and read papers before the scientific department. The excellent programme for this meeting at Music Hall was prepared principally by Dr. John A. Warder, and Prof Adolph Leué. Governor Foster made the address of welcome. The public schools were dismissed on the 26th and 27th to enable the teachers and pupils to take part in the celebration of tree-planting in the public parks. The 27th had been appointed as Arbor Day by proclamation of the governor. Extensive preparations had been made for its appropriate celebration in Eden Park. The city was in holiday attire. The soldiery and organized companies of citizens formed an immense procession under command of Col. S. A. Whitfield and marched to the park, where the command was turned over to Col. A. E. Jones, the officer in charge. The school children were under the charge of Superintendent Peaslee. Fifty thousand citizens covered the grassy slopes and crowning ridges, those assigned to the work of tree-planting taking their respective places. At the firing of the signal gun, "Presidents' Grove," "Pioneers' Grove," "Battle Grove," "Citizens' Memorial Grove," and "Authors' Grove," were planted and dedicated with loving hands and appropriate ceremonies. Addresses were made by ex-Governor Noyes, Dr. Loring, Cassius M. Clay, Gen. Durbin Ward, and others. No sight more beautiful, no ceremonies more touching, had ever been witnessed in Cincinnati. An important lesson in forestry had, indeed, been brought home to the hearts of the people, and a crown of success was awarded the American Forestry Congress. This was the first Arbor Day celebration in Ohio. And thus closed the first session of the American Forestry Congress, which embraces in its scope the United States and Canadas.

In January, 1883, the Ohio State Forestry Association, the out-

*Note.—The gentlemen present at this conference were Col. W. L. De Beck, Rev. Dr. Max Lilienthal, Supt. John B. Peaslee, Hon. John Simpkinson, the first president of the Association, Col. A. E. Jones, and Hon. Emil Rothe.

growth of the American Forestry Congress, was organized. The organizers were Dr. John A. Warder, Prof. Adolph Leué, Col. A. E. Jones, Hon. John Simpkinson, Supt. John B. Peaslee, Gen. Durbin Ward, Hon. Emil Rothe, Hon. Leopold Burckhardt, D. D. Thompson, Prof. R. B. Warder, Prof. Adolph Strauch, Dr. A. D. Birchard, Hon. Charles Reemelin, Prof. W. H. Venable, Dr. W. W. Dawson, John H. McMakin, Esq., myself, and perhaps a few others. The work of the previous year was largely repeated. A convention was held in April, at which many valuable papers were read, some of which were printed in full in the daily papers.

By authority of a joint resolution adopted by both branches of our State Legislature, Governor Foster issued his proclamation, appointing the fourth Friday in April as Arbor Day, which was the last day of our convention. Accordingly, our association had made extensive preparations for its celebration in Eden Park by the citizens and by the public schools.

I can give no better idea of this second celebration of Arbor Day in Cincinnati than by quoting from an article that appeared the following morning in one of our leading journals:

"The east ridge of the park was thronged with the associations planting tablets to the memories of the Presidents of the United States, the heroes of Valley Forge, and the pioneers of Cincinnati in their respective groves, while the northern projecting slope of the ridge was occupied by fully seventeen thousand school children in honoring 'Authors' Grove.' Viewed from the summit of the ridge immediately west, the sight was one of the most animating ever brought before the eyes of Cincinnatians. The entire ridge, nearly a third of a mile in length, was occupied by those persons taking part in the first-named ceremonies, while the slope designated was occupied by a dense mass of gayly dressed children in active motion over a surface of about five acres, and whose voices, wafted across the deep hollow to the western ridge, sounded like the chattering from a grove full of happy birds. The eastern slope of the west ridge was occupied by three thousand or four thousand spectators, who, reclining on the green Spring sod of the grassy slopes, quietly surveyed the scene from a distance. In all, there were over twenty thousand persons present. Before the exercises commenced a number of interesting photographic views were taken of the immense crowd, and others were taken after the children of the various schools had formed their circles around their respective trees along the slope of Authors' Grove, and they formed a picture of twenty-five or thirty circles of humanity around the young trees, with the populace massed between. Over in the center of the east ridge was the speakers' stand, with a tall staff bearing the national colors rising from the center, while smaller flags marked the trees dedicated to each author. The trees and tablets in all the various groves had been previously planted, so that yesterday was but a dedication day of the planting. The grove to the honor of Cincinnati pioneers had been planted by the association, and yesterday the tablet was laid to their memory. All the tablets were of uniform size and construction, each being of sandstone, twenty-four by thirty-six inches surface, and eleven inches depth. That for the Cincinnati pioneers contained at the upper center a figure of the primitive log-cabin, and the following inscription, 'Planted and Dedicated to the Memory of the Pioneers of Cincinnati by the Forestry Society.' Below were cut the names of the pioneers.

"'Presidents' Grove' bore a tablet with the following inscription: 'Presidents' Grove, Planted and Dedicated to the Memory of the Presidents of the United States, by the Forestry Society, 1882, Cincinnati, April 27th.' Then followed the names of all the twenty-one Presidents, down to President Arthur.

"'Centennial Grove' was planted in 1876 by Colonel A. E. Jones, from trees brought from Valley Forge. The tablet he had laid yesterday was dedicated to the heroes who served with Washington at Valley Forge. Following is the inscription: Eagle bearing the scroll 'Centennial Grove. Dedicated to the memory of 1776, and the patriots who suffered with Washington at Valley Forge, brought from that historic ground and planted by A. E. Jones, April 27, 1876.' Then followed the names Washington, Knox, Lafayette, Greene, Hamilton, Gates, Wayne, Putnam, H. Lee, Steuben, Weldin, Muhlenburg, Sullivan, Stark, Warren, McIntosh, Potter, Maxwell, Woodward, Patterson, Allen, De Kalb, Kosciusko, Marion, C. Lee, Glover, Poor, Larned, Scott, Pulaski, Sumter, Lincoln, Morgan, Smallwood, Eberhardt.

"Place was left upon each tablet for additional names. The Forestry Association planted a pin-oak tree to the memory of the late Adolph Strauch, superintendent of Spring Grove Cemetery. This was his favorite tree, and a year ago he expressed the hope that if any tree should ever be planted to his memory, it should be a pin-oak. It was appropriately draped in mourning, and labeled. An imported horse-chestnut was planted to the memory of Rev. Dr. Lilienthal by the German Pioneer Association. Both occupy prominent positions on the summit and center of the east ridge.

"At eleven o'clock the school exercises commenced at 'Authors' Grove.' These exercises were outlined by Superintendent Peaslee in the assignment of authors to the respective schools, and the programmes were filled out by the principals. The trees having previously been planted, small granite tablets, about eight inches square, bearing the name of the author honored and the date of the ceremony, were sunk, in most cases uniformly with the surface of the sod, in the immediate vicinity of the tree. Thus the exercises were dedicatory only.

"Following was the order of the school exercises, each of which included a sketch of the author designated, appropriate songs, and the recitation of selections from the author's works."

Here follows a detailed account of the part each school took in the exercises.

These were the first *memorial* groves ever planted in America—the first public planting of trees in honor of the memory of authors, statesmen, soldiers, pioneers, and other distinguished citizens.

Superintendent Peaslee, as chairman of the Arbor Day Committee, prepared a circular addressed to trustees, superintendents, and teachers of Ohio, requesting them to celebrate Arbor Day after the *Cincinnati plan*, which was outlined in the circular. This document was sent to all parts of Ohio, and to other States, and I am happy to know that in many places in Ohio and in adjoining States, tree-planting was celebrated according to this plan. The entire school system of West Virginia, under the inspiration of her enterprising State superintendent, B. L. Butcher, responded to this sentiment, and celebrated tree-planting after the manner set forth in our circular. One of the leading journals of England has lately recommended the introduction of the Cincinnati plan of tree-planting celebrations into the public schools of Great Britain.

There is a German proverb which says "what you would have appear in the nation's life you must introduce into the public schools."

It is gratifying to know that the efforts made in Cincinnati in behalf of forestry are duly appreciated abroad by men distinguished for their attainments in forestral science. Prof. Adolph Leue, our secretary, a scientific forester by education, sent several packages (of 100 trees each), of the *Catalpa speciosa* to different parts of Europe

accompanied with requests to plant them on "Arbor Day," April 27, 1882. These requests were complied with. Prof. Dr. F. Judeich, the celebrated director of the "Royal Forest Academy," of Tharandt, Saxony—the most renowned forest academy in the world—informed Prof. Leue that the trees sent by him were planted by the academy near the famous grove of beech known as "Tharandt's Heilige Hullen," and that the grove they form is dedicated to "Cincinnati Arbor Day," and is called the "Cincinnati Arbor Grove." The *Catalpa speciosa* is a purely American tree, described and named by Dr. John A. Warder, and this is its first introduction into Europe.

NECROLOGY.

Rev. MAX LILIENTHAL, D. D., the distinguished and eloquent rabbi of the Mound Street Temple, of this city, was among the first of our zealous workers in the promotion of the interests of forestry. He was a wise counselor, a profound scholar, an earnest leader, a devoted friend. His last public utterances were made before the committee which was then arranging for the organization of the Forestry Congress. He died suddenly, in the Spring of 1882, leaving a vacancy in the list of our officers ever to be mourned.

Prof. ADOLPH STRAUCH, the superintendent of Spring Grove Cemetery, and the first man who introduced the principles of landscape gardening, in the management of cemeteries, was also one of our most active officers. Recognized as one of the first arboriculturists in America, and the man to whom is the credit of giving to Cincinnati her renown for beautiful suburbs, with landscapes as lovely as a dream, he was generally beloved. He died in April, 1883, during the session of our Forestry Association.

DR. JOHN A. WARDER, the honorary president of our association, died at his beautiful home, at North Bend, Ohio, in July, 1883. His love for nature seems to have been born in him. His early surroundings and associations were powerful allies in his education as a naturalist. He read and studied and mastered the Book of Nature in its varied teachings as but few have mastered it. A seed, a bud, a leaf, a plant, a branch, a tree, a shell, a rock, attracted his notice and elicited investigation. He was a veritable student of Nature, and his life among men was as lovingly beautiful as it was among his plants and his trees.

His work in the great West for the encouragement of tree-planting, and in other parts of the country, and his varied and extensive writings on subjects pertaining to forestry, are well known in this country and in Europe. He is justly called the Father of American forestry.

Kind, generous, loving, hopeful, enthusiastic, full of accurate knowledge which he was ever ready to impart, teachable in spirit and teaching in life, he elevated and blessed his race.

The forests will sing his requiem and future generations will call him blessed.

WARREN HIGLEY,

President of Ohio State Forestry Association.

INTRODUCTION.

THE time has come when the people of Ohio must wake up to the importance of preserving our forests and of planting trees, or our State will suffer the terrible consequences of this neglect before another half century has passed away. Hon. Emil Rothe, who has given the subject much study, in speaking of Ohio before the American Forestry Congress at Cincinnati in 1882, said: "Let the hills be deprived of the rest of the protection which the forests afford, and half the area of our State will be sterile in less than fifty years." "The wealth, beauty, fertility, and healthfulness of the country," as Whittier justly says, "largely depend upon the conservation of our forests and the planting of trees." How can these truths be impressed most effectively upon the minds of our people? In the first place, forestry associations should be organized in every city, town, village, and country school district in the State, whose object shall be to plant trees along streets, by the road-sides, in parks and commons, around public buildings, in waste places; to distribute information in regard to trees and forests among the people, and to encourage tree-planting in every way possible. These associations, in conjunction with the schools, should hold tree-planting celebrations from year to year, but where such associations are not formed, the schools should conduct the exercises. The youth of our State must be instructed in the value and utility of forests—their influence upon climate, soil, productions, etc.—correct sentiment in regard to trees must be implanted in them if the best interests of the State in regard to forestry are to be subserved; and the most impressive and attractive means of imparting the instruction, and of interesting the pupils in the subject, is through the celebration of tree-planting. It is also the surest and best way of calling the attention of the people at large to it. The object of the celebration is to instill into the minds of children and older citizens correct sentiments in regard to trees, and to store their minds with information relating to forestry, and to the distinguished individuals in whose honor or memory each tree, or group, is planted, for we would have all the trees around which the celebrations take place dedicated to great authors, statesmen, soldiers—in brief, to famous men and women, whose lives have reflected honor upon our country; to the pioneers and distinguished citizens of each township, village, or city, as the case may be, and thus "make *trees*," as Holmes says, "monuments of history and character."

In every place where sufficient grounds can be obtained, either in public parks or elsewhere, we would have memorial groves planted, and the "Arbor Day Celebrations" take place in them. Let there be a "Citizens' Memorial Grove," in which trees shall be planted from year to year by loving hands of the relatives and friends of those who have died; let there be a "Pioneers' Grove," in which all citizens,

young and old, shall annually join in paying just tribute to the memory of those who endured the hardships and privations of a pioneer life.

"They vanish from us, one by one,
In death's unlighted realm to sleep;
And O! degenerate is the son
Who would not some memorial keep."

Let there be an "Authors' Grove," in which the school children shall honor, by living monuments, the great men and women in literature, so that while they learn to love and reverence trees they will, at the same time, become interested in the lives and writings of distinguished and worthy authors. Let there be a Soldiers' Grove, devoted to the memory of our patriotic dead. Yes,

Plant beautiful trees in honor of those
Whose memory you revere,
And more beautiful still they'll become
With each revolving year.

And what monuments the trees, the monarchs of the vegetable world, become! They are more durable than marble itself.* Their grandeur will challenge the admiration of the beholder when the coeval marble monument at their base will lie in ruins, defaced by age and crumbling into dust. Well may the great historian, Benson J. Lossing, ask, "What conqueror in any part of 'life's broad field of battle' could desire a more beautiful, a more noble, a more patriotic monument than a tree, planted by pure and joyous children, as a memorial of his achievements? What earnest, honest worker, with hand and brain for the benefit of his fellowmen, could desire a more pleasing recognition of his usefulness than such a monument, a symbol of his or her own productions, ever growing, ever blooming, and ever bearing wholesome fruit?"

Should the annual celebration of tree-planting, the preparation for which affords ample opportunity for imparting all needful information in regard to trees and forestry, become general in our State, the time would not be far distant when such a public sentiment would be formed as would lead to the beautifying by trees of every city, town, and village in Ohio, as well as public highways, church and school grounds, and the homes of the people in the country. In truth, within the next twenty-five years thereafter the general aspect of many parts of the State would be changed as has been that of Connecticut within the last few years through the instrumentality of her schools under the leadership of Hon. B. G. Northrop, and of her "Improvement Societies," which have been organized through his efforts. Pastor Oberlin, after whom Oberlin College, of this State, is named, required each boy and girl, before he would administer the ordinance of confirmation, to bring a certificate that he or she had planted two trees. If but the youth of Ohio could be led to plant their two trees each, how by the

*NOTE.—The natural age of the oak is from 1,500 to 2,000 years; of the elm from 350 to 500 years; of the cypress, 350 years; of the larch, 600 years; of the yew tree, 2,500 to 3,000 years; of the maple from 600 to 800 years; of the cedar, 800 years; of the linden, 1,200 years. There are trees now standing that are supposed to be over 5,000 years old.

children alone could our great State be enriched and beautified within the next fifty years.

Again, the trees which the children plant, or which they assist in dedicating, will become dearer to them as year after year rolls on. As the trees grow, and their branches expand in beauty, so will the love for them increase in the hearts of those by whom they were planted or dedicated, and long before the children reach old age they will almost venerate these green and living memorials of youthful and happy days; and as those who have loved and cared for pets will ever be the friends of our dumb animals, so will they ever be the friends of our forest trees. From the individual to the general, is the law of our nature. Show us a man who in childhood had a pet, and we 'll show you a lover of animals. Show us a person who in youth planted a tree that has lived and flourished, and we 'll show you a friend of trees and of forest culture.

ARBOR DAY CELEBRATION BY THE SCHOOLS.

We suggest that the exercises consist of reading, by the pupils, compositions or essays on the importance and usefulness of forests; of reciting, individually and in concert, selections on trees from various authors; of giving extracts from, and sketches of, the life and writings of the particular author in whose honor or memory each tree or group is planted; of singing; of the ceremony of throwing the soil, each pupil in turn, about the trees; and of appropriate talks by trustees, teachers, and others.

It is intended to have the exercises indicated above take place while the pupils of each class, room, or school, as the case may be, are arranged around their respective trees or groups. At the conclusion of this part of the programme, let all the pupils come together and sing our national and other appropriate songs, and listen to short addresses by speakers selected for the occasion. All the exercises should not occupy more than two hours, and at the expiration of that time the children should be permitted to enjoy their holiday (within proper limits, of course), after their own manner, on the green sod. Thus, "with the ceremony of a celebration, and with the attraction and pleasures to the young minds of a holiday, the exercises and what they symbolize will be deeply stamped upon the memory of the school children, and the entire effect upon them must prove to be of the most important and satisfactory character."

In order to indicate more fully the character and scope of the Arbor Day celebrations, we will here give a brief description of the celebrations held by the public schools of Cincinnati in Eden Park. For a fuller detail of the same we refer you to the last two annual reports of the schools.

About six acres were set apart in the park for a grove, now known as "Authors' Grove." Selections on trees and forestry from various authors were sent to the several schools to be memorized by the pupils; also information concerning historic trees of our country, and many facts of history giving the effects upon climate, soil, production, etc., both of the destruction and the removal of forests were given to the scholars. These formed the basis of compositions in the upper grades.

In addition to the above, the teachers gave sketches of the lives of their respective authors, and the pupils learned selections from their writings. In some of the schools the boys were organized into companies, under the name of Forestry Cadets, or the "Emerson Forestry Cadets" of Hughes High School, the "Longfellow Forestry Cadets" of the Eleventh District School, the "Holmes Forestry Cadets" of the Twenty-second District School; the girls and boys not organized were called Foresters, as the "Franklin Foresters" of the Tenth District School, the "Whittier Foresters" of the Twenty-sixth District School, and so on.

That the part taken by the pupils in the actual planting of the trees may not be misunderstood, I will state that experienced tree-planters did most of the work of setting out the trees previous to Arbor Day, and that the pupils finished the setting by filling around each tree soil left in heaps for this purpose.

On Arbor Day, Authors' Grove was distinguished from the others ("Pioneers' Grove," "Battle Grove," "Presidents' Grove," "Citizens' Memorial Grove," for the celebration of tree-planting was going on at the same time in each of these groves), by a large blue flag, placed near the center of the grove, and by small flags of the same color placed around the grove. At a given signal the pupils, upwards of seven thousand in number (at the celebration last year there were more than seventeen thousand present), arranged themselves, each school around its special author's tree or group, and the exercises indicated above began.

CELEBRATION EXERCISES.

In order to furnish information to composition writers and to speakers, Part First of this pamphlet contains lessons from history and other important facts. We earnestly request trustees, superintendents, and teachers to familiarize the older pupils under their charge with these facts, whether their schools celebrate tree-planting or not.

Part Second contains extracts on trees from various authors, for concert and individual recitation. It is not expected that they will all be recited at one celebration, but it is thought best to give a large variety from which to select.

It was our intention at first to have this pamphlet consist of three parts; Part Third to contain sketches of the lives of a number of our great authors, and selections from their writings, but, after careful consideration, it has been decided not to add this, for two reasons. First, because it would make the pamphlet too large, and, second, because sketches of the lives of our authors are found in our school readers, and beautiful selections from their writings can be made by the teachers with little difficulty. Of course the selections for this part of the programme need not be on trees or forestry.

JOHN B. PEASLEE,

Chairman Committee on Arbor Day Exercises.

PART FIRST.

LESSONS FROM HISTORY,

AND OTHER FACTS.

PALESTINE.

At the time when Joshua conquered the Promised Land, milk and honey were flowing into Canaan; that is, it was a country of wonderful fertility, blessed with a delightful climate. Both ranges of the Lebanon and its Spur Mountains were then densly covered with forests, in which the famous cedar predominated, that stately tree so masterly and poetically described by the psalmist and the prophets. The large and continually increasing population of Palestine enjoyed comfort and abundance during centuries. But the gradual devastation of the forests, which was finally completed by the Venetians and the Genoese, brought about a general deterioration of the country. The hills of Galilee, once the rich pasturing grounds for large herds of cattle, are now sterile knobs. The Jordan became an insignificant stream, and the several beautiful smaller rivers, mentioned in the Bible, now appear as stony runs, leading off the snow and rainwater, but being completely dry during the greater part of the year. Some few valleys, in which the fertile soil washed down from the hills, was deposited, have retained their old fertility, but the few cedar trees remaining as a landmark around the Maronite convent on the rocky and barren Lebanon, look lonely and mournfully upon an arid and desolate country, not fit to sustain one-sixth of such a population as it contained at the time of Solomon.

EMIL ROTHE.

GERMANY.

The progress made by Germany in tree-planting is but a part of her general progress. The credit is given to the great Frederick; it was part of the national policy of his day which raised Prussia from a small power to a great one, and to the energetic continuance of that policy, Germany owes Sadowa and Sedan. By this forethought, vast armies have been maintained, where once the sandy deserts would not nourish a flock of goats, and successive regiments of hardy soldiers have poured forth from the fertile soil where, two hundred years ago, the rugged *débris* of winter torrents, the thorn and the thistle, overspread a thirsty and impoverished land.

R. W. PHIPPS.*

* Note.—The articles credited to Mr. R. W. Phipps, of Toronto, Canada, were taken from his report to the Canadian Government; those credited to Hon. Emil Rothe, from the Proceedings of the American Forestry Congress, published in the report of the Toronto Fruit Growers' Association. Both of these reports are exceedingly valuable. J. B. P.

PROVINCE OF DÜBEN, SAXONY.

In the Prussian province of Saxony, the town of Düben celebrates an annual festival. The forests surrounding it had been recklessly cleared, and the sand banks which lay to the north-east began at once to move. Long tracts of corn land were converted into a sandy waste. The waves of gritty particles began to overleap the hedges and overflow the gardens under the walls of the town. Vegetables became scarce, pasture for cattle rare, and the most serious results were feared, when the forests of the district offered to arrest the desolating invasion. Fifty years have elapsed since then. Now, rich woods of acacias, birch, and pine wave over the sandy hills, and with their fine network of rootlets, hold the restless sand in its place and compel it to quiescence. Every year the citizens of Düben turn out with music and banners, into the woods, and celebrate with great jubilation the salvation of their town.

S. BARING GOULD.

FRANCE.

In France the aristocrats had preserved the forests. But when Jacques Bonhomme had overthrown their tyranny he proceeded to destroy the groves and forests, and in a short time he succeeded in almost staying crop growth in the fields adjacent. Wiser councils now prevail; experience has borne its fruits, and the French forests, particularly near the sea, bear witness how rapidly Providence assists a liberal, how sternly she repays a greedy and grasping, cultivator.

PHIPPS.

SPAIN.

Under the reign of the Moorish caliphs the Iberian peninsula resembled a vast garden, yielding grain and fruit, of every known variety, in the most perfect quality, and in endless abundance, and thickly populated by a highly cultivated people. But then the sierras and mountain slopes were covered with a luxuriant growth of timber, which was afterwards wantonly destroyed under the rule of the kings. Large herds of half-wild goats and sheep prevented the spontaneous growth of trees on the neglected lands. Now nearly all the plateau-lands of Spain, being fully one-third of the entire area, are desert-like and unfit for agriculture, because of the scarcity of rain and the want of water. Another one-third of the territory is covered with worthless shrubs and thorn-bushes, and affords a scanty pasture for the merino sheep, the number of which is decreasing from year to year. The once delicious climate has become changeable and rough, since there are no more forests to break the power of the scorching Salano and the cold Galego wind. The average depth of the fine rivers that cross Spain in all directions has greatly diminished. The government, well aware of the causes of the deterioration of the soil and climate, has lately made earnest efforts, partly to replant the old forest grounds, but has met with little success, it being very difficult to make trees grow on former timber land, which has been lying waste for a longer time. It will take a full century's time and necessitate an immense outlay of money to restock Spain with sufficient timber.

ROTHE.

Spain is very deficient in woodland. The evils of denudation are perhaps nowhere more signally exemplified than in Spain. Rentzsh goes so far as to ascribe the political decadence of Spain wholly to the destruction of the forests. A school of forestry has been lately established in Escorial, and good results from the training there may be hoped for.—*Encyclopædia Britannica.*

THE EASTERN COAST OF THE ADRIATIC SEA.

On the entire eastern coast of the Adriatic Sea, in Dalmatia, Herzegovina, and Montenegro, the same evil consequences of the devastation of the natural forests are clearly perceptible. These coast lands were very fertile until the Romans, having used up their own timber, took it from the other side of the Adriatic, and until millions of Illyric trees were converted into pillars and rammed into the lagunas to make foundations for the houses, palaces, and churches of Venice. What was left by the lumbermen was destroyed by the camp-fires of careless herdsmen, and here also the goats did their pernicious work in preventing spontaneous growth. The long mountain range running along the coast, which was yet well timbered in the time of the great Constantine, is now destitute of all soil; the naked lime-roads, reflecting the hot rays of the sun, warn the stranger not to enter the sterile and inhospitable country, hardly worth the loss of human life and treasure which the subjection of its unruly inhabitants now costs the house of Hapsburg. ROTHE.

SICILY.

Let us look at Sicily, once the great grain reservoir for Rome. Since the island of plenty was despoiled of its forests, it gradually lost its fertility and the mildness of its climate. The ruins of proud and opulent Syracuse lay in a desert, covered by sand, which the hot sirocco carried over the Mediterranean Sea from Africa. A few isolated, well-watered, and carefully cultivated districts of very limited extension, is all that is left to remind the tourist of the by-gone glory of Sicily. ROTHE.

PYRENEES MOUNTAINS.

The desolation of mountain regions by the clearing of forests is strikingly illustrated in the Pyrenees. Formerly the plains were cultivated, and inundations were much less frequent and less destructive than nowadays. As roads came to be opened the profit from sheep and cattle became greater, and the clearing of forests was begun to make room for pasturage and, to some extent, for timber, until by degrees the slopes of the mountains were denuded, and the rains, having nothing to hinder, began to form eroding torrents, the south slopes suffering most, because first cleared and directly exposed to the sun's heat. The extremes of flood and drouth became excessive, and extensive tracts have been ruined for present occupation from this source. PHIPPS.

ITALY.

When the Apennine and Sabinian Mountain range and its slopes were covered with its natural growth of trees, the now detested Roman Campagnas, which constitute the largest part of the Pontine swamps, were a beautiful section of country. They were then adorned with sumptuous Summer residences, villas, parks, flower and fruit gardens of the Roman aristocrats. After the destruction of the forests, the whole region became unhealthy, and almost absolutely uninhabitable on account of the malarious gases emanating from the soil. Formerly, these were absorbed by the leaves of numerous trees; now they fill the air and infect even the very heart of St. Peter's eternal city. ROTHE.

WITHIN a few years a portion of these swamps have been planted with eucalyptus trees, and they have had a wonderful effect on the healthfulness of the atmosphere, and people now reside in these parts during the Summer, where but a short time ago it was impossible to live. The eucalyptus tree is now being introduced into the everglades of Florida in order to purify the air in these unhealthy regions of the State. J. B. P.

ISLAND OF ASCENSION.

The Island of Ascension furnishes another remarkable instance. This island, some seven and a half miles long and six wide, was entirely barren when first occupied in 1815, and so destitute of water that supplies were brought from England and the Cape of Good Hope. Means have since been taken to plant trees and to introduce agriculture on the island, though not to any great extent. The effect has been remarkable. The island grows forty kinds of trees where but one grew in 1843, owing to want of water. The water supply is excellent, and the garrison and ships visiting the Island are supplied in abundance with vegetables of various kinds. PHIPPS.

CEYLON.

In his report to the Earl of Kimberly, Dr. J. D. Hooker, of the Royal Kew Gardens, says: "The presence of forests plays a most important part in storing the rainfall and yielding up gradually to the streams a continuous supply of water, a thing, I need hardly say, in a hot country of primary importance. Moreover, the rain is retained by forests on the surface of the ground; it gradually permeates to the subsoil, and so feeds the underground water-bearing strata upon which springs and wells must eventually depend. If the forest is indiscriminately removed the rain runs off as it falls, and washes away the superficial and fertile soil with it. The mischief already done in Mauritius and various West India Islands is so widely spread (being in some, indeed, irreparable), that I venture to press upon your lordship my own opinion as to the urgency of active steps being taken in the case of an island so beautiful and at present so fertile as Ceylon. I have lately received an account of the deterioration of the climate of some of the Leeward Islands, which affords a melancholy confirma-

tion of what I have urged above. The contrast between neighboring islands similarly situated is most striking. The sad change which has befallen the smaller ones is due to human agency alone. It is reported of these that in former times they were clothed with dense forests, and their older inhabitants remembered when the rains were abundant and the hills and all uncultivated places were shaded by extensive groves. The removal of the trees is the cause of the present evil. The opening of the soil to the vertical sun rapidly dries up the moisture. Without shade upon the surface, the water is rapidly exhaled, and springs and streams are dried up."

ST. HELENA.

The Island of St. Helena, the well-known scene of Napoleon's banishment, furnishes a remarkable illustration of the connection that exists between forests and rainfall. When first discovered, in 1502, it had heavy forests. The introduction of goats, and other causes, destroyed these woodlands, until the island was almost denuded. The consequences were that in the records of the last century we find accounts of repeated and almost periodical visitations of very severe drought, occasioning various losses to cattle and crop efforts. Towards the end of the last century, however, the governor saw the need of strenuous efforts. Gardeners were sent for, and trees from all parts of the world were planted, without regard to their character. The "Pinas Pinaster" was sown very extensively, and several plantations of this still exist. The consequences of this were discovered a few years ago as follows: "For many years past, since the general growth of our trees, we have been preserved from the scourge, and droughts such as were formerly recorded are now altogether unknown. Our fall of rain is now equal to that of England, and is spread almost evenly over the year." PHIPPS.

ISLAND OF SANTA CRUZ.

The famous West Indian island of Santa Cruz is at the present moment suffering from the vandalism of its inhabitants; its eastern portion, which twenty-seven years since was rich, populous, and of tropical luxuriance, now deprived of its forests, has become dry, arid, and worthless. It is found to be too late to retrieve the previous error, for, of a thousand trees recently planted upon an estate on this island, not one survived. The facts in regard to the island of Curaçoa are still more interesting: "In the year 1845 it was found to be an almost perfect desert. Where, according to the testimony of the inhabitants, had once been a garden of fertility, abandoned plantations, the recent ruins of beautiful villas and terraced gardens, and broad arid wastes, without a blade of grass, showed how sudden and complete a destruction had fallen upon this unfortunate little island. The cause was the cutting-down of the trees for export of their valuable timber; the effect followed even more rapidly than at Santa Cruz, as the island lies five leagues further south, and the heat is more intense. The rains have almost entirely ceased. Almost within sight of Curaçoa is

the coast of the Spanish main, covered with the rankest vegetation, over which the burdened clouds shower down abundant blessings." (*From Report of Commissioners of State Park, New York:* Hon. Horatio Seymour, chairman, and Verplank Colvin, secretary.)

ALGIERS, SAINT JAGO ISLAND.

In Algiers marked changes in the climate have followed upon the deforesting of extensive tracts, and wonderful results have followed the systematic planting of other regions. The islands of the sea have been made so many isolated experimental stations, where men have learned how essential to health the forests are; while on some of them the conclusive test of reforesting has been made with a return of showers, and a more equable distribution of heat and cold. Saint Jago, the chief of the Cape de Verde Archipelago, was, at its discovery, clothed with a forest which has been recklessly destroyed. Rain is now lacking sometimes for a whole year, a green leaf can scarcely be detected over what were once fertile lava plains, while certain of the harbors of the island have been filled up by the precious soil of the island, which has been carried down by the fierce torrents, which, alternating with drought, curse this naked island. Similar results have followed the destruction of forests on St. Helena, the Mauritius, and certain of the Canary Islands. ROTHE.

ISLAND OF TERNATE.

The effects of forests upon the general healthfulness of the State is great. The philosopher, Boyle, long since stated that in the Dutch East Indian island of Ternate, long celebrated for its beauty and healthfulness, the clove trees grew in such plenty as to render their product almost valueless. To raise the price of the commodity most of the spice forest was destroyed. Immediately the island—previously cool, healthy, and pleasant—became hot, dry, and sickly, and unfit for human residence. It is well known that the general clearing-away of the forests in this country has had a tendency to raise the temperature in Summer.—*New York Report of the Commission of State Parks.*

BUCHARIA.

Khanate of Bucharia presents a striking example of the consequences brought upon a country by clearings. Within a period of thirty years this was one of the most fertile regions of Central Asia, a country which, when well wooded and watered, was a terrestrial paradise. But within the last twenty-five years a mania of clearing seized upon the inhabitants, and all the great forests have been cut away, while the little that remained was ravished by fire during the civil war. The consequences were not long in following, and have transformed this country into a kind of arid desert. The water-courses are dried up and the irrigating canals empty. The moving sands of the desert being no longer restrained by barriers of forests are every day gaining upon the land, and will finish by transforming into a desert as desolate as the solitudes that separate it from Khiva. PHIPPS.

OHIO.

Have you never tried to find out why Southern Ohio has ceased to be the great fruit country *it was formerly known to be?* Why is it that we can not raise any more peaches in our State, while they used to bring sure crops not more than a quarter of a century ago? * * * * * What is it that makes our climate, once so favorable for mankind and vegetation, more unsteady, from year to year? Look at the woodless hills of Southern Ohio, and you have the answer.

Let the hills be deprived of the rest of the protection which the forests afford, and half of the area of this State will be sterile in less than fifty years. The rain will wash the soil from the hilltops first, and then from the slopes; the limestone, which is now covered with productive humus, loam and clay, will be laid bare; the naked rocks will reflect the rays of the sun and increase the Summer heat; the north storms will blow unhindered over the country, and every change of the wind will cause an abrupt change in the temperature. The rainfall will be diminished and become irregular. Snow and rainwater will at once run down in the valleys and cause periodical freshets, which will ultimately carry away the best part of the soil, even from the valleys. Such will be the unavoidable results of further devastation of timber. ROTHE,

KENTUCKY.

Hon. Cassius M. Clay, of Kentucky, said before the American Forestry Congress at Cincinnati: "I move in the sphere of experience with more certainty. I remember when the forests were hardly broken here that springs of water were very frequent and perennial. The rivulets and creeks and rivers had a perpetual flow. These have now changed. The rivulets and creeks are now dried up in Summer, and the fish so often caught by me in earlier years are gone. Not one spring in a thousand remains. Indian corn was generally planted in March, and the rains and exhalations of moisture from the surroundings made crops successful every year. Now, the destruction of the forests has lost to us that bed of leaves which was a perpetual reservoir of water for springs and evaporation; aided by the treading of the hard surface, the rain-fall, if the same as of old, rushes off at once, sweeping the soil into the Mississippi delta. The dry winds absorb not only the ancient humidity of the air, but drink up the subsoil evaporation, so that our Winters are longer, more changeable, and unendurable. Corn can hardly be safely planted till late in April, and drouth too often ruins all in spite of our best efforts.

MASSACHUSSETTS.

Prof. Sargent, of Harvard University, who has given this question as much study as any one in America, says: "As moderators of the extremes of heat and cold, the benefits derived from extensive forests are undoubted, and that our climate is gradually changing through their destruction is apparent to the most casual observer. Our Springs are later, our Summers are drier, and every year becoming more so; our Autumns are carried forward into Winter, while our

Winter climate is subject to far greater changes of temperature than formerly. The total average of snowfall is perhaps as great as ever, but it is certainly less regular and covers the ground for a shorter period than formerly. Twenty years ago peaches were a profitable crop in Massachusetts; now we must depend on New Jersey and Delaware for our supply; and our apples and other orchard fruits now come from beyond the limits of New England. The failure of these and other crops in the older States is generally ascribed to the exhaustion of the soil; but with greater reason it can be referred to the destruction of the forests which sheltered us from the cold winds of the north and west, and which, keeping the soil under their shade cool in Summer and warm in Winter, acted at once as material barriers, and reservoirs of moisture."

THE NORTHWEST.

"I had an opportunity," says Mr. Rothe, "to observe and study the results caused by the destruction of the forests in the Northwest. Thirty years ago steamboats drawing six feet of water made regular trips on the Upper Mississippi up to St. Paul. Now the navigation with boats of half that draught is uncertain. Nearly all the tributaries of the Upper Mississippi have also lost one-half, or even more, of their former supply of water. Inundations in the Spring are now frequent, while now in the Summer time the depth of many of these rivers average hardly more inches than could be measured by feet thirty years ago. Water-powers, which were formerly deemed to be inexhaustible, have entirely been abandoned, or their failing motive power has been replaced by steam. In the remembrance of the older settlers the climate of Wisconsin and Minnesota was remarkably steady, the Winters were long and cold, the supply of snow ample and regular, and late frosts in the Spring were unusual. Now the inhabitants complain of abrupt changes of the temperature in all seasons of the year, and of the irregularity of the snow-fall. The Legislature of Wisconsin has already paid attention to these alarming facts, and has taken the preservation of existing forests, and the establishment of artificial ones, in earnest consideration. By a resolution recently passed, it asks of the National Government the transfer for that purpose of all unsold public lands to the State which are now despoiled of their timber by thievish lumbermen."

ARIZONA.

In the Territory of Arizona an immense number of deserted Indian dwellings carved out of the rocks were recently discovered. The former inhabitants of the same must necessarily have been a sedative people, devoted to agriculture, but the whole district is now nearly a desert, there being no supply of water, and hills as well as plateaus and valleys are dry, stony, and nearly destitute of vegetation. This can not have been the condition of that district when it was densely populated by hundreds and thousands of Indians. Now the only plausible solution of the ethnographical enigma which is here propounded to us, is the following: The hills and slopes there were once stocked with lum-

ber, which was wasted by the inhabitants. The same deterioration of the country gradually took place which we notice in Palestine, Greece, and Scicily, where the people had to emigrate to avoid starvation.

But enough of the warning examples of history.

It is not too late to repair all the damage that has been done in America by the devastation of our natural forests. A regulation of the use of the timber may be effected without any injury to the legitimate lumber trade, and the replanting as well as the establishment of artificial forests, may undoubtedly be made profitable for private as well as for public enterprise. If it is remunerative to acclimatize and extensively raise American trees in Germany and France, where the soil is much higher in price than here, why should it not be lucrative to cultivate them in those parts of the United States in which the timber is scarce and precious? They grow quicker here and to greater perfection than anywhere else. Nature has lavishly provided this country with an uncommonly large number of the most valuable species of trees. There are not more than thirty-five species and distinct varieties of native trees in France which attain a height of over thirty feet, not more than sixty-five in Germany, but over one hundred and fifty in the upper part of the Mississippi Valley alone. All Europe possesses not a single native walnut tree. (The so-called English walnut is of Asiatic origin.) We have nine varieties of hickory and two of walnut proper. You may search all the world over in vain to find a sort of timber which, in general usefulness, can rival our hickory tree. Our walnut and oak varieties alone outnumber all the varieties of trees native to France and Spain.

A benign nature has lavishly provided for this country; but does that give us a right to waste these blessings, destined for the human race of all future ages, within the short life of a few generations, like spendthrifts? Shall we adopt the most detestable motto of a modern Sardanapalus, "*Après nous le deluge!*"—anticipate every thing, and leave nothing for those who will come after us? Will America's pride bear the humiliating prospect of having the immense work of culture, which so far has been achieved in this country by the most intelligent, independent, progressive, and energetic of all nations, frustrated by the unavoidable consequences of our greedy mismanagement of the natural resources of our country? Shall the future of this great republic be made uncertain by a gradual deterioration of soil and climate, or shall it forever remain the happy and comfortable home of the free? Is not the care for future generations one of the most solemn duties imposed upon us by laws of humanity and morality. Are we worthy to enjoy the bequest of our forefathers if we are not just and liberal enough to provide for our descendants.

ROTHE.

NEVADA.

The Nevada *Enterprise* in speaking of the effect that the partial stripping of the forests on the sides and summits of the Sierras will have, says: "Already one change has occurred that is evident to the most ordinary observer, which is the speedy melting away of the snow on the mountains. It now goes off at once in a flood, with the

first warm weather of Spring, whereas, formerly, lying shaded and protected by the pines and other evergreen trees, it melted slowly, and all Summer sent down to the valleys on both the eastern and western slopes of the Sierras constant and copious streams of water. Instead of a good stage of water in our streams throughout Summer, as in former times, there is a flood in the Spring, and when this is past by, our rivers speedily run down, and, being no longer fed from the mountains, evaporation leaves their beds almost dry when the hot weather of Summer comes on."

FORESTS AND THEIR MANAGEMENT IN OTHER COUNTRIES.

GERMANY.

In Germany the management of forests by the state has been carried on for hundreds of years, and, as we have seen, vast tracts of sterile land have been redeemed by government forestry. "Here we find a model or precedent not only of systematically planting thousands of acres of trees, but a general system of forest management, commencing by a careful survey, stock-taking, and commutation of all rights; careful experiments in the rate of growth; the best soil for each description of tree; in fact, in every branch of the subject, and resulting in what we find to-day: hundreds of thousands of acres mapped, divided into periods and blocks, and worked to the best advantage both with regard to present and future, and the annual yield of which now and for many years to come, is known and fixed to within a few hundred cubic feet. In Prussia there are twenty millions of acres of forests, ten millions of which are state forests. Of these the income is $14,000,000, and the expenses $7,500,000, leaving $6,500,000 clear profit. When it is considered that this result is arrived at without trenching on the capital or stock of timber in the forests, which, on the contrary, is being increased and improved in every province of the kingdom, and that the indirect value to the people of many forest privileges, which they exercise free of charge, must be very great, not to mention an improved climate, some idea may be arrived at of the enormous value and benefit such a system of forests must confer on Prussia. The forests form part of the finance department, and are presided over by an overland-forest-master and ministerial director, and others. There are two forest academies, one near Berlin, and one in Hanover. There are twelve provinces in Prussia divided into thirty circles, and to each an over-forest-master. Next in order come the forest-masters, numbering one hundred and eight, in charge of divisions with an average area of sixty thousand acres, and then the executive officers, seven hundred and six over-foresters, to each of whom is 7,000 acres, and to each of these is attached a cash-keeper; and then there are 3,646 foresters, or overseers, with ranges of 1,000 to 3,000 acres. At the forest academy near Berlin there are seven professors with assistants. There is an experimental garden attached, with an over-forester in charge of the technical portion, and professors for the meteorological, zöological and

chemical sections. The varied apparatus includes a building where seed is dried and separated from the cones; large seed-bed of spruce, fir, willow; full opportunities of transplanting seedlings, and examples of every kind of tree for botanical study. There is also a museum rich in specimens of all sorts of birds, animals, and insects found in the forests. In cases where the animal or insect does damage to trees, specimens of the branch, bark, leaf, or cone, in a healthy state, and after being attacked, are exhibited, close to each, so that the students can see at a glance the nature of the damage, and connect it with the animal which causes it. Insects are shown in the several stages of their existence—larvæ, chrysalis, caterpillar, moth—with their ramifications in the stem or branches of the tree. These, with specimen blocks of almost all descriptions of timber, form a most instructive collection. There is a forest district attached. . . . In the national appropriation bill, large sums are set apart for the purchase of such lands as are unfit for cultivation, and for utilizing the same by planting trees." PHIPPS.

HANOVER.

In Hanover, a province of Prussia, there are 600,000 acres in the government forests, and the cost of working and all expenses, $650,000 annually; the receipts, $1,500,000, and the profit $850,000. Here the steepest and most rocky sides of the hills are all covered with forests, which have been created by the labors of the Forest Department. In many such places, where even the few handfuls of soil placed round the young tree had to be carried some distance, it is not contended that the *first* plantation will yield a pecuniary profit, but the improvement in climate by the retention of the moisture, and the reclamation of large tracts, formerly barren and unproductive, is taken into account; besides which the dropping of leaves and needles from the trees will, erelong, create a soil and vegetation, and insure the success of plantations in future years. PHIPPS.

SAXONY.

The state forests are nearly 400,000 acres, worked at an expense of $500,000, receiving $1,750,000, leaving to the government a clear rental of $1,250,000. There is a forest academy at Thorandt. The state forests of Bavaria are 3,000,000 acres. They return, after paying all expenses, $4,500,000 per annum. PHIPPS.

AUSTRIA.

The state forests of Austria contain 2,000,000 acres. The forest academy is at Miriabrunn, near Vienna. The collections belonging to the academy are fine. PHIPPS.

SWITZERLAND.

In no country in Europe has the waste of forests been more rapid or destructive than in Switzerland, and in none, perhaps, has this improvidence been followed by more disastrous results. The woods, being considered common property, were uprooted, and the soil on the mountains, being exposed to the wash of the rains, was rapidly carried away, leaving broad areas of naked rock, from which the water would at once

sweep down the valleys in sudden and destructive inundations. The Autumn of 1868 is memorable on account of these floods. Public attention has, however, been thoroughly awakened, and active preparations are in progress to remedy the evils. The cantons which have charge of these operations have for some time, at great expense, been constructing works to control the streams and planting trees. The matter is now in Switzerland taken in hand by the national government.

FRANCE.

The forests of France, under the management of a government bureau, contain 7,500,000 acres. Of schools of forestry the French have, at Nancy, one of the best in the world, where pupils are instructed both experimentally and theoretically in all forest-learning, the collegiate home studies being constantly varied by excursions of parties of students under charge of professors to those forests where, at the time, most can be learned.

ITALY has established a forestry school, near Florence; Russia, two forest schools—one at St. Petersburg and one near Moscow. In Sweden forest regulations extend as far back as 1647, and then before that private owners were required to plant and protect from cattle two trees for each one cut. PHIPPS.

DENMARK.

Denmark is one of the most poorly wooded countries of Europe, the percentage of woodland being now only 4.25 of the whole area. This small proportion is caused chiefly by the nakedness of the western part of Jutland, where the west winds have seconded the action of man in destroying the forests. Much of the wood, which at one time covered nearly the whole of Denmark, having been cut down to make way for agriculture, and to supply fuel and timber, a vast area thus bared has become a sandy, heathy desert.

Effective measures are now taken by the Danish Government to preserve the remains of the woodland, and to create new plantations. The state forest department permits only small portions of old forests to be cleared at a time, and insists on simultaneous planting of an equal area. The Danish forest school is at Copenhagen, and forms a branch of an agricultural college.—*Encyclopædia Britannica.*

HOW MOISTURE IS RETAINED BY FORESTS.

The whole forest in its natural state forms a reservoir admirably fitted to receive large supplies of moisture, to hold it for a lengthened time, and to part with it at intervals well calculated to benefit the vegetation of the surrounding country. The bed of the forest is a widely spread surface, piled thick with leaves, twigs, pieces of fallen branches, and remnants of decayed logs, covering another layer of the same substances in a state of partial decomposition, overlying yet another strata completely decomposed,—altogether forming a deep pot or hollow framework, penetrated with myriads of pipes, tubes, and aqueducts, and interspersed with millions of miniature logs, blocking

and holding in position the flow of water, until the humus below fully absorbs it; while the whole surface of the earth is crossed, recrossed, and crossed again by a checker-work of partially elevated roots, the box-like openings between which perform the same function. If we go below the surface, we shall find the solid earth beneath the mass of vegetable decomposition, pierced everywhere with upright and porous pillars of wonderful tubular structure—the large and perpendicular tap-roots which many trees possess pass deep into the solid, clayey strata, otherwise impermeable, and sending through the triturated earth which surrounds them a slow and steady supply of water to a thousand subterranean and spring-feeding channels, which, traveling away from the forests and under the cultivated fields, supply the great lower bed of moisture, that, continually rising, fertilizes the upper soil.

PHIPPS.

THE protection afforded by the forest against the escape of moisture from its soil by superficial flow and evaporation insures the permanence and regularity of natural springs, not only within the limits of the woods, but at some distance beyond its borders, and thus contributes to the supply of an element essential to both animal and vegetable life. As the forests are destroyed, the springs which flowed from the woods, and, consequently, the greater water-courses fed by them, diminish both in number and volume. This fact is so familiar in the United States and the British provinces that there are few old residents of the interior of those districts who are not able to testify to its truth as a matter of personal observation. My own recollection suggests to me many instances of this sort; and I remember one case where a small mountain spring, which disappeared soon after the clearing of the ground where it rose, was recovered about twenty years ago by simply allowing the bushes and young trees to grow up on a rocky knoll, not more than half an acre in extent, immediately above the spring. The ground was hardly shaded before the water reappeared, and it has ever since continued to flow without interruption. The hills of the Atlantic States formerly abounded in springs and brooks; but in many parts of these States, which were cleared a generation or two ago, the hill-pastures now suffer severely from drought, and in dry seasons furnish to cattle neither grass nor water.

MARSH: "*The Earth as Modified by Man.*"

EFFECTS OF THE CUTTING OF FORESTS ON WATER SUPPLY OF RIVERS.

Upon the territory of the commune of Labrugniere (a village of France) there is the forest of Montant, containing 4,524 acres, and owned by the commune. At the entrance of the forest, and along this brook, will be found several fulling mills, each requiring eight-horse power, and moved by water-wheels which work the belters of the machines. The commune of Labrugniere had long been noted for its opposition to the forest regulations, and the cutting of wood, together with the abuse of pasturage, had converted the forest into an immense waste, so that this great property would hardly pay cost of

guarding it, and afford a meager supply of wood for its inhabitants. While the forest was thus ruined and the soil denuded, the waters after each heavy rain swept down through the valley, bringing with them great quantities of gravel, the *débris* of which still encumber the channel of the stream. The violence of these floods was sometimes so great that they were compelled to stop the machines for some time. But in the Summer-time another inconvenience made its appearance. Little by little the drought extended, the flow of waters became insignificant, the mills stood idle, or could run only occasionally for a short time.

About 1840 the municipal authorities began to inform their population relative to their true interests, and under the protection of better supervision the work of replanting has been well managed, and the forest is to-day in successful growth. In proportion as the re-planting progressed, the precarious use of the mills ceased, and the regulation of the water-courses was totally modified. They now no longer swell into sudden and violent floods, compelling the machines to stop; but the rise did not begin until six or eight hours after the rains began, they rose steadily to their maximum, and then subsided in the same manner. In short, they were no longer obliged to stop work, and the waters were always enough to run two machines and sometimes three. This example is remarkable in this, that all the other circumstances had remained the same, and therefore, we could only attribute to the reforesting the changes that occurred, namely, diminution of the flood at the time of rain and an increase in its flow during common times.

M. CANTEGRIL, *sub-inspector of forests, in Ami des Sciences.*

THE RAIN AND FORESTS.

There is nothing of greater importance to the agriculturist than rain at the proper season and in proper quantity; and science has demonstrated that the forests of a country are potent in the regulation of storms, the formation of clouds, and the descent of rain. Any thing which vitally affects the interests of the farmer and producer affects the whole State, and demands the earliest attention of the people's representatives.—*New York Report of the Commissioners of State Parks.*

FLOODS.

The reckless destruction of forests, so strongly condemned by many American writers, which has been practiced by their countrymen, is now bearing its fruits in the terrible Spring and Autumn floods which of late years have affected large portions of the United States. The Americans might spare much of their care for the channels of the Mississippi if they would restore the groves cut from the hills which feed its sources. To disforest a mountain slope is to devote the height to barrenness, the valley to flood, and both to parching drought when drought is most injurious. PHIPPS.

WHEREVER the forests have disappeared, the Spring inundations of the rivers have acquired a frequency unknown before. It can not be disputed that the terrible destructive effects of the inundations of the Loire and the Vistula, of late years, must be in great part attributed to the excessive denudation of the forests.

SCHACHT, *Professor at the University of Bon, "Les Arbres."*

IMMENSE AMOUNT OF WATER GIVEN TO THE ATMOSPHERE BY TREES.

The amount of moisture given out by trees is immense. In some trees the upward rush of moisture from the roots is very powerful. The workmen in ship-yards frequently find in the center of a teak log a core of sand fifty or sixty feet long, an inch in diameter, and hardened to a marble-like consistency, which has been carried and deposited there by the sap in its upward course.

WASHINGTON ELM.

A few years ago a number of scientists of New England made a calculation as to the amount of water given to the atmosphere by the "Washington Elm," Cambridge, Mass. They calculated that the leaves of that tree would cover over 200,000 square feet of surface, and that they gave out every fair day during the growing season 15,500 lbs., or $7\frac{3}{4}$ tons, of moisture. J. B. P.

HEALTHFULNESS OF FORESTS.

The influence of forests on the healthfulness of the atmosphere demands thoughtful attention. Plants imbibe from the air carbonic acid, and other gaseous and volatile products, exhaled by animals or developed by the natural phenomena of decomposition. These the trees, more than the smaller plants, absorb, and instead of them pour into the atmosphere pure oxygen, essential to the life of animals. The carbon, the very substance of wood, is taken from the carbonic acid thus absorbed. "Humid air," says Bequerel, "charged with miasmata, is deprived of them in passing through the forest." R. W. EMERSON.

A MOUNTAIN cliff, a wall, or a forest, are the natural protection against the wind. In this respect the forest can not be without beneficial effect on the adjacent country; the young growth of trees flourishes, screened from the force of the wind, the arable land develops itself better, sands meet an impassable barrier, and the noxious influence of the dry winds is turned aside. It is, then, indisputable that the forests exercise a salutary influence on the temperature of a country. The sanitary condition of man and the domestic animals, as well as the growth of cultivated plants, depends on the climate of the locality. The fertility of a country depends on its supply of forest land; for on this depend the foundation of soil, the precipitation of dew, the fall of rain, the steady current of rivers, the mitigation of the evil influences of unhealthy winds, and the growth of vegetables in the fields and meadows. SCHACHT.

To ARREST a pestilence by quarantine, the State sternly interrupts trade, travel, and pleasure; but the far greater mortality from the increasing fickleness and cruelty of our climate can be arrested by the gentlest means. It is needed only that our broad States shall have one-fourth or one-fifth of their surface covered with trees—which, by the way, may be so distributed as to increase the value and producing power of lands. It is needed only that the road sides shall be well planted, that all hills shall be fixed forever with woods, that the rivers shall be fringed with appropriate species, and that woods shall be wood, in fact, and not struggling collections of the dying monarchs of the primeval forest. Along with a better climate will come not only the better health and longer lives, but forgotten springs will gush anew from the hills, the attenuated streams will fill their banks again—and yield us a better fish supply—and will cease to drown the valleys with floods after every rain. DANIEL MILLIKIN.

MECHANISM OF A TREE.

A tree (and I beg my readers to follow this attempt at explanation closely—all depends upon it) receives its nourishment from the roots. These correspond to the mouth in the human frame. Now, as in the human frame the nourishment received is, after being supplied to the blood, exposed to the operation of air in the lungs before it is fit to give material to the body, so in a tree, the nourishment taken in at these tree mouths, the roots, passes to the lungs of the tree, and there, by contact with the air, is rendered fit to supply fresh material to the tree. These tree lungs are the leaves. This operation is affected by the passage upward from the soil around the roots, through the trunk, the branches, and every twig of the tree to the leaves, of a large quantity of water, containing in solution the nutriment for the tree. Arrived at the leaves, a process takes place which separates, by means of contact with the air, most of the water the roots had taken in, from the valuable nutriment, and throws off, in vapor, the surplus water into the air. At this time certain constituent portions of the air are utilized and mingled with the nourishment retained. This is all, now a small portion in comparison with what had arisen from the roots, yet retaining enough water to serve as as a vehicle back, is returned toward the roots, depositing in its way, in leaf, bark, and root, what is needed there for the growth of the tree. In these, they undergo, especially in the bark, further fitting and digesting processes before they assimilate with the substance of the tree. The water which was retained to carry them down, being no longer needed, passes out at the roots. . . . In the back of the leaf are numerous stomates or mouths. . . . Of the extent of the provision made for evaporation by the leaves, some idea may be formed from a consideration of the number of *stomata* or stomates to be found in the leaves of plants. The number varies in different plants, for which variation a reason may be found in the different conditions of growth to which they are subjected in their several natural habitats. In the back of the leaf of the apple tree there are about twenty-four thousand stomates to the square inch. In the leaf of the

lilac there are a hundred and sixty thousand of them to the square inch. In the leaves of the cherry-laurel there are none on the upper surface of the leaf, but ninety thousand have been counted on the lower surface. PHIPPS.

PROPORTIONATE AREA OF WOODLAND.

MEN need to be taught to plant trees, and their children to plant and love them. Owners of good lands in Maine or elsewhere will in the future learn that their bleak fields, if judiciously planted with wood to the extent of 40 per cent of area, will produce on the remaining 60 per cent more in all kinds of crops than the whole does now or can be made to do under any other possible course of treatment. Lands well sheltered can and do produce Winter wheat in Maine as well as on the new lands at the West. In accordance with this memorial, the State Legislature provided for exemption for twenty years from taxation of all cleared land on which forest trees had been successfully cultivated for three years, and maintained in a thriving condition thereafter.—*Committee on Agriculture.*

WHAT portion of the area of the State should be covered with forests? Economists estimate about twenty-five per cent as a suitable proportion; but this varies with the position, physical character, and commercial interests of the country under consideration. "I do not pretend that the whole of our farms should be planted in forests trees," says Hon. H. G. Joly, of Quebec; "that would be absurd. Our farms are generally too large for the small number of hands we employ; there are always some odd corners, idle strips, stony or damp patches which it does not pay to cultivate. Begin and plant forest trees there, suiting the tree to the nature of the soil—you will find some for every kind of soil. Once planted and fairly started, they will take care of themselves, give no trouble, and increase yearly in value. If every acre of ground were covered with valuable crops, one would try and get reconciled to the absence of trees, and bow to the iron rule of our age which converts every thing into cash. But what a small proportion of all that ground is used profitably! We can find plenty of spare room for growing forest trees; they are not only the most beautiful ornaments to a country, and the most useful product of nature, giving fuel, timber, shade, shelter, retaining moisture, and a protection against droughts, etc., etc., but, considering the question from a *strictly money-making* point of view, the culture of forest trees is perhaps the *best and safest investment* that can be made."

NOTES.

ROADSIDE TREES.

IN Germany, France, Italy, and many other countries of Europe, as has been seen, large forests are planted annually under the direct supervision of the several governments; but besides these and private forests, trees are planted in great numbers by the roadsides. At present the total length of public roads of France is 18,750 miles, of

which 7,250 miles are bordered with trees, while 4,500 miles are at present being planted or will shortly be planted. On the remaining 7,000 miles the nature of the soil does not admit of tree growth. The number of trees already planted by the roadsides in France amounts to 2,878,603, consisting principally of elm, poplar, acacia, ash, plane, sycamore, and limes. In Germany many thousands of miles of roads are shaded by trees; in some parts they are forest trees, in others fruit trees. I regret that I have n't the exact statistics.

ALL lovers of trees should hold in grateful remembrance the name of Hon. James Hillhouse, of New Haven, Connecticut, who beautified that city by planting with his own hand the elms that have since made it famous.

"I HAVE always admired," says Whittier, "the good taste of the Sokoki Indians around Sabago Lake, who, when their chief died, dug around a beech-tree, swaying it down, and placed his body in the rent, and then let the noble tree fall back into its original place, a green and beautiful monument for a son of the forest."

"PLANTING and pruning trees," Sir Walter said, "I could work at from morning till night. There is a sort of self-congratulation, a little tickling self-flattery in the idea that while you are pleasing and amusing yourself you are seriously contributing to the future welfare of the country."

FAMOUS TREES.

A few famous trees of this country, not named in the extract from the letter of the historian Lossing, are given here. The "Burgoyne elm," at Albany, N. Y.—This tree was planted on the day the British general, Burgoyne, was brought a prisoner into Albany, the day after the surrender. The weeping-willow in Cop's burying-ground, near Bunker Hill—This willow, grown from a branch taken from the tree that shaded the grave of Napoleon at St. Helena, now waves over that of Cotton Mather, so noted in Salem witchcraft. Cop's burying-ground is so near where the battle was fought that a number of grave-stones can be seen to-day which were pierced through by bullets fired by British soldiers in that battle. The ash-trees planted by General Washington at Mt. Vernon—These ashes form a beautiful row of immense trees, which are the admiration of all who visit the home of the "Father of his Country."

J. B. P.

THE CARY TREE—PLANTED BY ALICE AND PHŒBE CARY.

In 1832, when Alice was twelve years old, and Phœbe only eight, as these little girls were returning home from school one day, they found a small tree, which a farmer had grubbed up and thrown into the road. One of them picked it up, and said to the other, "Let us plant it." As soon as said, these happy children ran to the opposite side of the road, and with sticks—for they had no other implement—they dug out the earth, and in the hole thus made they placed the treelet; around it, with their tiny hands, they drew the loosened mold, and

pressed it down with their little feet. With what interest they hastened to it on their way to and from school, to see if it were growing; and how they clapped their little hands for joy when they saw the buds start and the leaves begin to form! With what delight did they watch it grow through the sunny days of Summer! With what anxiety did they await its fate through the storms of Winter, and when at last the long-looked for Spring came, with what feelings of mingled hope and fear did they seek again their favorite tree!

But I must not pursue the subject further. It is enough to know that when these two sisters had grown to womanhood, and removed to New York City, they never returned to their old home without paying a visit to the tree that they had planted, and that was scarcely less dear to them than the friends of their childhood days. They planted and cared for it in youth; they loved it in age. That tree is the large and beautiful sycamore which one sees in passing along the Hamilton turnpike from College Hill to Mt. Pleasant, Hamilton County, Ohio. J. B. P.

"OLD LIBERTY ELM."

It was the custom of our New England ancestors to plant trees in the early settlement of our country, and dedicate them to liberty. Many of these "liberty trees," consecrated by our forefathers, are still standing. I remember, when a boy, the interest I felt in "Old Liberty Elm," that then stood in Boston. That old tree was planted by a schoolmaster long before the Revolutionary War, and dedicated by him to the independence of the Colonies. Around that tree, before the Revolution, the citizens of Boston used to gather to listen to the advocates of our country's freedom; around it, during the war, they met to offer up thanks and supplications to Almighty God for the success of the patriot armies; and, after the terrible struggle had ended, the people were wont to assemble from year to year in the shadow of that old tree to celebrate the liberty and independence of our country. It stood there till within a few years, a *living* monument of the patriotism of the citizens of Boston. The sight of that tree awakened patriotic emotions in every true American Heart. And when at last that old tree fell, the bells in all the churches of Boston were tolled, and a feeling of sadness spread over city and State. Even in Ohio, there were eyes that moistened with tears when the news came that "Old Liberty Elm" had fallen in a storm. Such was the veneration in which it was held. J. B. P.

"WASHINGTON ELM."

Another of these "liberty elms" now stands in Cambridge, Mass. Under the shade of this venerable tree Washington first took command of the Continental army, July 3, 1775. How the affection of every lover of his country clings around that tree! What care has been taken of it, what marks of esteem have been shown it by the citizens of Cambridge, may be judged by those who have seen it standing, as it does, in the center of a great public thoroughfare, its trunk protected by an iron fence from injury by passing vehicles, which for more than a century have turned out in deference to this monarch of the Revolution. J. B. P.

ARBOR DAY.

Teachers can easily interest their pupils in adorning the school grounds. With proper prearrangement as to the selection and procuring of trees, vines, or shrubs, Arbor Day may accomplish wonders. Many hands will make merry, as well as light, the work. Such a holiday will be an attractive occasion of social enjoyment and improvement. The parents should be persuaded to approve and patronize the plan. It tends to fraternize the people of a district, when they thus meet on common ground, and young and old work together for a common object, where all differences of rank, or sect, or party, are forgotten. The plantings and improvements thus made will be sure to be protected. They will remain as silent, but effective teachers of the beautiful to all the pupils, gradually improving their taste and character. Such work done around the school naturally extends to the homes. You improve the homes by improving the schools as truly as you improve the schools by improving the homes. "The hope of America is the homes of America." It has long been my ambition to improve the homes and home-life of our industrial classes and help them to realize that the highest privilege and central duty of life is the creation of happy homes, for the home is the chief school of virtue, the fountain-head of individual and national strength and prosperity. It is a worthy ambition to surround one's home and children with such scenes and influences as shall make the every-day life and labors brighter and happier, and help one to go sunny and singing to his work. Our youth should early share in such efforts for adorning the surroundings of their homes, and planting trees by the wayside. How attractive our roads may become by long avenues of trees. This is beautifully illustrated in many countries of Europe.

Arbor Day will become one of the institutions of the country, in which our boys and girls will take an eager share and genuine pleasure, and thus gain a liking for trees that will never be effaced. Nebraska has the honor of originating Arbor Day. Some ten years ago, at the request of its State Board of Agriculture, the governor appointed the second Wednesday in April as the day to be devoted to economic tree-planting, and it is claimed that twelve millions of trees were planted on that day. The successive governors have continued thus to recognize this day. The schools last Spring adopted the "Cincinnati plan" of planting "memorial trees."

The recent Spring floods and Summer droughts in Indiana, Ohio, and elsewhere, increasingly and now alarmingly destructive, are calling public attention to the cause and remedy as never before. The denudation of the hills and mountain sources of the springs is the leading cause of these freshets, and these can be remedied only by the extensive re-foresting of such lands. This great result, which must be the work of time, will be best accomplished by interesting the young, as well as the old, in tree-planting. The Arbor Day in schools will do immense good in this direction. We need to popularize and diffuse the sentiment of trees. This will best secure their propagation and protection. The frequency of forest fires is the common objection to economic tree-planting. But let the sentiment of trees be duly

cultivated, and they will be regarded as our friends, as is the case in Germany. The public need to understand that the interests of all classes are concerned in the conservation of forests, In Germany, Switzerland, Sweden, and other European countries, this subject is so taught in their schools that the people generally appreciate the value of trees and the need of protecting them. Hence an enlightened public sentiment is a better guardian of their forests than the national police.

HON. B. G. NORTHROP.

IT is vital to the future welfare of our people that the reproduction of the forests should at once begin, not on a small scale or in few localities, but in large measures and co-extensive with our settlements. A broad statesmanship, in our national and State Legislature, should at once take up the subject, and deal with it year by year until the great work shall be adquately begun.

There can be no doubt of the beneficial influence of the forest areas equal in aggregate to one-fourth or one-third of the entire area of any extensive region. But however important climate effects may be in this connection—however desirable it may be that the crops and animal life of the farm should enjoy the benefits of forest influences and shelter, the need of extensive forest planting is important enough without taking into consideration its effect on atmospheric movements, temperature, and rainfall. The store, the dwelling, the shop, the factory, the railroad, the wharf, the warehouse—all these demand action; demand it in the name of domestic life, of farm economy, of commerce, of all the arts of our civilization. What we shall save in climate by preserving forest areas, or gain by their extension, is just so much to be enjoyed in addition to other compensations.

DR. JOHN A. WARDER.

DESTRUCTION OF FORESTS IN OHIO.

Ohio was once supposed to possess an unfailing supply of black walnut, but it has been shipped into other States and to foreign countries in such vast quantities that there is now scarcely a first-class tree of this kind to be found in her bounds. Much of it has been shipped to Austria. Since 1850 Ohio has suffered the destruction of a vast proportion of her forest area. Between the years 1853 and 1870 there were cleared over four million two hundred thousand acres—equal to one-sixth of the entire area of the State, and equivalent to the removal of the timber from an entire county each year. In his last message to the Ohio Legislature, Governor Bishop stated that during the years between 1870 and 1878 over four million five hundred thousand acres of timbered land had been cleared, which was nearly one-half the entire acreage of 1870. To restore the forests of the state to the condition of fifty years ago would require not less than two hundred years. Consequent upon the destruction of the forests many rivers have become diminished, among which Bryant named the Cuyahoga; and from the same cause—the destruction of our forests—other streams are drying up in Summer.

DAVID D. THOMPSON.

HOW TO PLANT TREES.

The following articles are taken from the writings of experienced tree-planters:

SOME THOUGHTS AND SUGGESTIONS ON TREE-PLANTING.

One of the first and most important considerations is the adaptation of the kind of tree to the soil which is to become its new home. It would be useless to plant a weeping willow or a swamp cypress on a high, dry, and stony hill. None of the genera which naturally select elevated and dry localities should be planted in low and swampy grounds. The constituents of the soil may vary greatly, but the constant supply of moisture in the new locality should vary but little from that in which the tree to be transplanted originally grew.

Any kind of tree whose stump sprouts freely after its trunk has been cut away will grow readily after transplanting, if the work has been properly done at the right time. The stump of the pine tree, and indeed of many of the coniferæ, rarely sprouts. Every one who has tried it, and has succeeded knows what a triumph it is to nurse into vigorous life and growth a pine tree or a hemlock tree after transplanting it.

The best time to plant trees is in the Spring before the buds have begun to swell. The top and branches should be well cut back. If this be done in the Fall, previous to transplanting, so much the better, as it saves the tree much vital force.

To insure the growth of a tree, it should be removed with the greatest of care, so as to keep intact as many of the rootlets and their terminal spongioles as possible. The sooner a tree be planted after its removal the better are its chances for growing. Within certain limits the smaller the tree and the larger the root the surer is it to grow.

The place a tree is to be set should be thoroughly prepared by spading up the soil to the depth of two feet or more;* then filling up with loose, rich soil to the proper height. The tree may now be set into the place prepared for it. The surface of the fine soil upon which you set the tree should be adapted to the inequality of the roots, so that the tree will stand erect and alone. While the fine soil is being sifted upon the roots, the tree should be churned up and down with a gentle motion, so there be left no empty space under and around the roots. A pail of water should now be poured on the soil about the roots (this should be done with watering can or sprinkler), so as to insure their close embrace and to afford some food for the fasting tree.

The soil should not be heaped up around the tree, but pressed down, but not too firmly, to the level of the surrounding surface.

The ash, the oak, the chestnut, the hickory, the walnut (black and white), the maple, and the tulip all respond readily to the above treatment.

A. D. BINKERD, M. D.

*NOTE.—In sandy soil or in drained ground this will do, but in clayey soil the hole must not be dug too deep, as it forms a reservoir of water which will often kill the tree.

TRANSPLANTING TREES.

Nearly every one who lives in the country at some time plants trees, but how few know just how to do it properly!

At the outset it is necessary to bear in mind that the tree is a living body, and that the process of removal interferes with its functions, and when it is displaced from the ground, causing an arrest of the circulation that is constantly going on between the tree and the soil, a severe shock is sustained. Every root-fiber destroyed lessens by so much the chances of success, and when a greater portion of these are gone, the tree is forced to depend on its own vitality to supply a new set of rootlets before growth can take place.

In the beginning bear in mind that it is important not to injure the roots and to preserve as many as possible, particularly the small ones, for these are what must be depended on to start the growth in the new life. Where trees are dug up to be removed a short distance, preserve all the roots if possible.

When the tree is out of the ground, exposure to the sun or drying winds will cause evaporation, which is very detrimental to the tree, and is a common cause of failure, and one which is often overlooked. If, however, the tree has become shriveled and dried, vitality may often be restored by burying the whole tree for a few days in moist soil; but it is far better not to have them get in condition to need any such remedy, which at best can not restore the tree to its original condition.

In excavating holes for planting, it is not necessary to dig very deep, unless for a tree with a tap-root; it may even be hurtful in a hard soil by affording a place to hold water under a tree to its injury. The roots of young trees grow near the surface, and the holes should be large enough to allow the roots to be extended their full length without cramping or bending.

In case it is very dry at the time of planting, it is a good plan to puddle the soil around the roots, always covering with dry earth. In this way moisture will be retained for a long time. Avoid too deep planting. The roots must not be placed beyond the action of the air; about the depth they were in before removed, or a very little deeper. When filling, press the earth from the first firmly, so as to leave no spaces, and have it compact about the roots. This latter point can not be too thoroughly attended to, and, of course, to do this well, the soil must be finely pulverized and no lumps be allowed in the filling. It will be necessary to use the hand to place the soil in spaces where the spade can not go.

The time of setting is best when the soil has settled in the Spring and become warm, so that trees not being removed begin to start. Earlier than this is not so well, for the sooner the tree begins to grow after being set the more likely to do well. We believe the proper time is the Spring, the best time for planting all kinds of trees, although early Fall planting is often recommended. Evergreens often succeed well planted in August; still we would rather risk them in the Spring, just as they are ready to grow. When you would plant early potatoes is a good time to plant trees. Evergreens are the most sensitive of any to drying while being removed, and if once allowed to become dry it is

all-day with them; no amount of pains or trouble can restore the lost vitality. For this reason they can be removed but short distances unless very carefully packed.

As more or less of the roots are removed or injured, it is necessary to prune the top when transplanted. This has generally been done by cutting all the branches back; but a better way is to remove a portion of the branches, leaving those strong ones that are in position to give the tree a well-shaped top. If all the branches are left, and the proportion between the tops and roots balanced by cutting all back, in after-growth some of these branches will require to be removed—an injury, perhaps, to the tree. This certainly will apply to fruit-trees. Sometimes trees for ornament or shade require to be cut back to make a thicker top or one more symmetrical. Large trees are removed in Winter with a large ball of earth attached to the root, and, though a heavy job, it is the only successful method of doing it. A trench can be dug at the proper distance around the tree, and filled with coarse litter previous to freezing, and also the holes to receive the trees, which will much facilitate the labor.

Small trees do better than large ones, and it is better to be to the trouble of taking care of them one or two years longer than to have them grow too long in the nursery row. Trees grown on good soil are better than from poor soil. They have more and better roots, and are in better condition to grow in their new location. Of course, it is not desirable that the soil where they have grown should be so rich as to produce such a growth that the wood will not properly ripen, but sufficient to make a strong, healthy tree. A tree in poor soil has weak, spindling, feeble branches, and, like a starved animal, takes a long time to recover, even when placed in better soil with better feeding.

After large trees are properly transplanted they should be staked, to prevent swaying around by the wind. When the ground is soft the movement of the top creates a displacement of the roots before they have taken any hold of the soil, resulting in injury or death to the tree. Mulching must not be dispensed with. Its object is to keep the soil moist until the roots obtain a strong hold. This may be overdone. Mulch for shade only. A large mass of decaying matter is more hurtful than beneficial. We can not avoid all risks in transplanting; but if these conditions, which we repeat, are followed, the risk will be very much lessened: Careful removal, protection from drying while out of the ground, setting in warm, well-pulverized soil, hard tramping the soil about the roots, judicious pruning, staking, and mulching.

All this requires care and labor; but it will make the difference between a thrifty, profitable orchard and a sickly and unprofitable one, or a fine-formed, well-grown shade or ornamental tree and a stunted, unhealthy specimen which has no beauty or gives no pleasure.—X.

If the trees are large, cut the top well back. The elm will grow if cut back to a pole; but if left with a full top the chances are that the tree will die, wholly or partially, leaving the living portion in unsatisfactory shape. A most common mistake is that of leaving too

much top. In case of the maple tree, however, the top should be lessened by thinning the branches, leaving the outline of the tree not much disturbed. This is necessary to secure the symmetrical oval shape which is the beauty of the maple. If great care be taken to secure all the roots, and as much earth as possible, a larger top than otherwise will be supported. If the tree stand upon a slope, take a spade and cut a narrow, leading channel in the turf, which will conduct more water to the roots of the tree, in case of a washing shower, than it would receive without this help.

PLANTING FORESTS.

The foregoing directions are for planting large trees for shade or ornament; the following are for planting forests for revenue:

To start forests of oak, hickory, walnut, and all other heavy-seeded trees, it is best and cheapest to plant the seeds just where the trees are to grow. One method of planting acorns and nuts, in practice by the Tharandt Forest Academy, of Saxony, is as follows: Take a stick sharpened at one end and shove it obliquely into the earth to the depth of two inches, not more (in hard or stony ground, the pick is used), put in the seed and press the soil above it down firmly with the foot. The seeds should be placed about three feet apart. For the catalpa, elm, maple, locust, evergreen, and all other light-seeded trees, it is best to plant the seed in beds, and transplant them three feet apart after one, two, or three years' growth.

These little trees can be planted very rapidly with a hoe or spade. Dig a small hole a little deeper than the roots; hold the plant vertically with the left hand, and with the right draw the soil carefully around the roots, and press it down with the hands and foot. If there are stones near by, place a few around the plant; they will help keep the surface moist, and prevent the weeds and grass from growing. In prairie lands, or where there is tough sod, the ground should be cultivated for three years, and then prepared as for wheat, and furrows may be run three feet apart, the seedlings laid in these furrows, and their roots covered with a plow. They need no other attention except to keep them free of weeds and to thin when necessary. For a full discussion of the subject of tree-planting and forest culture see Dr. F. B. Hough's report to our government for 1877. This exceedingly valuable book is, we believe, now out of print, but copies might be obtained from members of Congress of 1878–80.

FOREST CULTURE.

North of the Potomac, and east of the Ohio, and I presume in limited districts elsewhere, rocky, sterile wood-lands, costing from two dollars to fifty dollars per acre, according to locality, etc., are to-day the cheapest property to be bought in the United States, even though nothing were done with them but to keep out fire and cattle, and let the young trees grow as they will. Money can be more profitably and safely invested in lands covered by young timber than any thing else. The parent who would invest a few thousand for the bene-

fit of his children or grandchildren, while young, may buy woodlands which will be worth twenty times their present cost within the next twenty years. But better even than this would it be to buy up rocky, craggy, naked hill-sides, and eminences which have been pastured to death, and shutting out the cattle inflexibly, scratch these over with plow, mattock, hoe, or pick, as circumstances shall dictate; plant them thickly with chestnut, walnut, hickory, white oak, and the seeds of locust and white pine. Plant thickly and of divers kinds, so as to cover the ground promptly and choke out weeds and shrubs, with full purpose to thin and prune as circumstances shall dictate. Many farmers are averse to planting timber because they think nothing can be realized therefrom for the next twenty or thirty years, which is as long as they expect to live. But this is a grave miscalculation. Let us suppose a rocky, hilly pasture lot of ten or twenty acres, rudely scratched over as I have suggested, and thickly seeded with hickory nuts and white oak acorns only. Within five years it will yield abundantly of hoop-poles, though the better, more promising half be left to mature, as they should be; two years later another and larger crop of hoop-poles may be cut, still sparing the best, and thenceforth a valuable crop of timber may be taken from the land; for if cut at the proper season (October to March), at least two thrifty sprouts will start from every stump; and so that wood will yield a clear income each year, while the best trees are steadily growing and maturing. I do not advise restriction to those two species of timber, but I insist that a young plantation of forest trees may and should yield a clear income in every year after its fourth. HORACE GREELEY.

PROFITS OF FOREST CULTURE.

Many millions of dollars of American capital are invested in various enterprises which require a much longer time to yield profit or income and never pay nearly as well as systematic forest culture in the proper locality. Great fortunes are risked in wild speculations, in rail-roads which pay no dividends, in mining stocks which enrich only the agents, or brokers selling them, in lands and lots, which never attain the expected increase of value. But there is certainly no risk in forest culture. It produces an article of general and steadily increasing demand, and it can be calculated with almost mathematical certainty what profit may be derived from it and within what time.

The fact that it is highly remunerative in all Europe, where land is much higher in price than here, should justify the expectation that it will be profitable here. Our soil and climate produce a much larger variety of valuable timber than any European country. Several species of American trees are now cultivated there very extensively because of the superior qualities of the same and with a view to large profit therefrom. Our American hickory, black walnut, hard maple, and wild cherry for instance have none of their equals in Europe. They excite the envy of European carriage makers, furniture men, and manufacturers of tools. They are now largely imported from America, but the forest-men of Germany and France are earnestly engaged in raising them for the home market. Now it is well known that on this

continent forest trees grow much quicker and comparatively taller than in the eastern hemisphere. Here the most useful trees attain their full development in two-thirds of the time required in Europe, an advantage which can hardly be overestimated.

In the United States the consumption of timber *per capita* of the population is infinitely larger than in Europe, where no frame houses are built, where no new settlements are made, and where only a very small minority of the people are so situated that they may indulge in the luxury of fine furniture, buggies, and carriages. The parlor and sitting room furniture of any of our skilled mechanics, or small shop-keepers, made up from black walnut, cherry, or ash, would amply do for many a European officer of more than ordinary rank. In the rural districts of Spain, Italy, France, and Germany, hardly one out of a hundred persons is able to buy furniture of what we would call the most common kind. Here in America, the proportion of the use of timber for furniture and carriage work to its production has become really alarming. Within the past twenty-five years, the price of such timber has risen at a rapid rate and is still increasing. At any place not too distant from the ordinary transportation lines, every year's growth of a walnut, maple, or hickory tree represents a sure and respectable increase of the owner's capital.

The governments of Prussia, of several of the smaller German principalities, and of France, Austria, and Italy make forest-culture an unfailing source of a large yearly revenue. They find it profitable to buy tracts of inferior lands at prices equal to those of our best farming lands, and to stock them with timber. Many private landowners there also derive a large yearly income from their forests without ever diminishing the area of the same. Forests there are divided in enough equal parcels for yearly cutting to give the trees sufficient time for development, and each parcel is immediately replanted after having been cleared. Excepting a few remote mountain districts, there are no more natural forests in Central Europe. It is not profitable to let any forest tree remain growing after it has attained full age, as the forester calls it. In Central Europe oak grows to perfection in eighty to one hundred and twenty, beach and pine in thirty to fifty years. But it is not always intended to raise trees to full size, and it is really not so remunerative.

Only the better class of wheat or meadow-land nets a greater average revenue in twenty-five years than well-managed forests—a fact which may at first sight seem incredible, but which is easily accounted for by comparison between the yearly expenses of grain culture and the trifling outlay required for the planting and maintenance of a forest after the trees have become two or three years old, and by taking in consideration the frequent failures of grain crops and the sure steadiness of the growth of trees. Planting may be done by children.

With all the advantages in our favor, why should forest-culture not be just as profitable in Ohio as in any part of Europe? Our supply of timber, fit for furniture, carriages, and even cooperage is almost entirely exhausted. The many timber lots distributed all over the state are very deceptive. Closer inspection will show that nearly all the good trees of larger size have long ago found their way to the saw-

mills, and that only the wind-twisted and heart-rotten ones have remained. Spontaneous growth is not regular enough to be really profitable. The future supply of good timber in Ohio will consequently depend mostly upon systematic forest culture, and those first engaging in it will find ample remuneration for any capital or labor employed. They may derive a fortune from comparatively poor land, unfit for grain crops and of little account for pasturage.

Locust, although being a very hard and solid timber, will make fence posts and pavement blocks in eight years from the seed, and large trees in twelve years. Its beautiful golden yellow color, mixed with jet black, makes it well adapted for elegant furniture. Catalpa, which makes the best railroad ties, grows even quicker. Hickory, now largely exported to Europe, and coming in great demand there, will prove exceedingly profitable. Sown in rows three feet apart, the nuts six inches apart, the young trees will grow up straight and slender. In five years thinning out may commence, and hoop-poles may be sold; the next thinning out will give material for spokes and buggy fills; and the best trees, left standing at proper distances, will make a fine forest in less than twenty years. Black Walnut is a slower grower, but it is getting so costly that it is worth while to think of planting it for speculation. Men below the age of thirty-five years will be able to reap a rich harvest from the cultivation of this valuable timber before they have passed the best time of life. A forty-acre lot of Black Walnut forest, now planted, will, in twenty-five years, make its owner independently wealthy, without requiring much outlay or labor. I am told that a gentlemen, who twenty years ago, planted twelve acres of land in Southern Indiana with pecan nuts, made a fortune by it, and created the source of a large yearly revenue.

But the most profitable branch of forestry is certainly the cultivation of oak for tan-bark on the renewal or Hackwald system. The acorns (about six bushels to the acre) will be laid six inches apart and in rows three feet distant. The young saplings taken out by thinning may be used to great advantage in planting. In twelve years (under very favorable conditions even sooner) the trees will be large enough for cutting and peeling. New sprouts will grow out from the roots in the same year, and the second growth will prove more thrifty than the first. The revenue from such forests may be called perpetual. In Europe vast tracts of second class land are forested in this manner, and many formerly unproductive estates have been made highly valuable by this very Hackwald culture. The bark of the young and middle-sized trees contains more tannin and is therefore of higher value than that taken from old trees. Here in Ohio the bark of the chestnut-leaved oak is preferred to all others and almost exclusively used. The tree is a more rapid grower than other varieties of oak and is satisfied with the poorest of soil.

One of the most intelligent and experienced of the Cincinnati tanners informs me that in Cincinnati alone 18,000 cords of tan-bark are used per year, and even a larger quantity in Louisville. Seven trees of a foot in diameter will furnish one cord. The chestnut-leaved oak never forms entire forests by spontaneous growth, but is interspersed among other timber. My informant counted the chestnut-leaved oak-trees on

a comparatively very well-stocked 15,000 acre lot in Pulaski County, Ky., and found them to number 3,500. At that rate the tanneries of Cincinnati and Louisville alone would every year use up the trees spontaneously growing on about 100,000 acres of land. The few years since the Cincinnati and Southern Railroad has been in operation a belt of fourteen miles on both sides of the road, and of about two hundred miles in length, has been almost totally depleted of that valuable variety of timber. The same gentleman ventures to predict that within twenty years from now the entire supply of chestnut-oak bark in the United States will be exhausted. The price now varies from $14 to $28 per cord, and is steadily increasing. From carefully prepared reports of the forestry departments of the several German States and of Austria, it appears that an acre of properly cultivated Hackwald of the age of twelve years will furnish from four to five cords of tan-bark, and about six thousand feet of timber (board measure) fit for posts and for wagon-makers' work. The revenue from the wood covers all the expenses of planting and managing, leaving a surplus.

Under such circumstances, the foresting of inferior lands in Ohio, Kentucky, or West Virginia could not fail to lay the foundation of wealth for those who would now engage in it. Large tracts of such lands are now lying waste. The income derived therefrom is now generally not sufficient to pay the taxes and interest on the original purchase money. By the means of forest culture, they might be easily turned into well-paying estates, and while they are now not much more than a public nuisance, they may become an ornament of the State and a great benefit for the general public.

EMIL ROTHE.

VILLAGE IMPROVEMENT SOCIETIES.

In order to assist in organizing Village Improvement Societies, the following Constitution is given here. It is modeled after the constitution of the Laurel Hill Association of Stockbridge, Conn., and of the Wyoming and College Hill (Hamilton County, O.,) Village Improvement Societies.

ARTICLE I.

This Society shall be called the ——— Improvement Society.

ARTICLE II.

The object of this Society shall be to improve and ornament the streets and public grounds of the village by planting and cultivating trees, establishing and protecting grass-plats and borders in the avenues, and generally doing whatever may tend to the improvement of the village as a place of residence.

ARTICLE III.

The business of the Society shall be conducted by a board of nine directors—five gentlemen and four ladies, to be elected annually by the Society—who shall constitute the board. This board shall, from its own number, elect one President, two Vice-presidents, a Secretary, and Treasurer, and shall appoint such committees as they may deem advisable to further the ends of the Society.

ARTICLE IV.

It shall be the duty of the President, and, in his absence, of the senior Vice-president, to preside at all meetings of the Society, and to carry out all orders of the Board of Directors.

ARTICLE V.

It shall be the duty of the Secretary to keep a correct and careful record of all proceedings of the Society and of the Board of Directors, in a book suitable for their preservation, and such other duties as ordinarily pertain to the office.

ARTICLE VI.

It shall be the duty of the Treasurer to keep the funds of the Society, and to make such disbursements as may be ordered by the Board of Directors.

ARTICLE VII.

No debt shall be contracted by the Board of Directors beyond the amount of available funds within their control to pay it, and no member of this Society shall be liable for any debt of the Society beyond the amount of his or her subscription.

ARTICLE VIII.

Any adult person may become a member of this Society by paying two dollars ($2.00) annually. Any person not of age who shall plant and protect a tree, under the direction of the Board of Directors, or shall pay the sum of $1.00 annually, may become a member of this Society until of age, after which time their annual dues shall be increased to two dollars ($2.00), the same as other adults.

ARTICLE IX.

The annual meeting of the Society shall be held during the first week of October, at such place as the Board of Directors may select, and a notice of such meeting shall be posted in prominent places through the village. Other meetings of the Society may be called by the Board of Directors when desirable.

ARTICLE X.

At the annual meeting, the Board of Directors shall report the amount of money received during the year, and the source from which it has been received; the amount of money expended during the year, and the objects for which it has been expended; the number of trees planted at the cost of the Society, and the number planted by individuals; and, generally, all acts of the Board that may be of interest to the Society. This report shall be entered on the record of the Society.

ARTICLE XI.

This Constitution may be amended with the approval of two-thirds of the members present, at any annual meeting of the Society, or at any special meeting called for that purpose, a month's notice of the proposed amendment, with its object, having been given.

PART SECOND.

SELECTIONS ON TREES

FOR

ARBOR DAY CELEBRATIONS.

"The Tree of the Field is Man's Life."—BIBLE.

IT is gratifying to see Ohio take such deep interest in tree-planting, which is beginning so strongly to attract public attention. Setting apart one day for this purpose and making it a general holiday will add attractiveness to utility, and give it a deeper hold on the popular heart. But the happiest thought of all was to make it a holiday for the public schools, and have the children practically take part in it and set out groups of trees for their favorite authors. You thus not only connect trees with the associations of childhood and their pleasantest holidays, but with authors from whom they receive their earliest and best impressions.

We sometimes forget that the highest aim of education is to form right character—and that is accomplished more by impressions made upon the heart than by knowledge imparted to the mind.

The awakening of our best sympathies—the cultivation of our best and purest tastes—strengthening the desire to be useful and good, and directing youthful ambition to unselfish ends—such are the objects of true education. Surely nothing can be better calculated to procure these ends than the holiday set apart for the public schools.

J. T. HEADLEY: *Extract from Letter.*

WHEN we plant a tree, we are doing what we can to make our planet a more wholesome and happier dwelling-place for those who come after us if not for ourselves.

As you drop the seed, as you plant the sapling, your left hand hardly knows what your right hand is doing. But Nature knows, and in due time the Power that sees and works in secret will reward you openly. You have been warned against hiding your talent in a napkin; but if your talent takes the form of a maple-key or an acorn, and your napkin is a shred of the apron that covers "the lap of the earth," you may hide it there, unblamed; and when you render in your account you will find that your deposit has been drawing compound interest all the time.

OLIVER WENDELL HOLMES: *Extract from Letter.*

We wish to wake up the people of Ohio to the value of their forests, and to prevent the fulfillment of the prediction of Bryant's Indian at the burial-place of his fathers:

But I behold a fearful sign,
To which the white man's eyes are blind.
Before these fields were shorn and tilled,
Full to the brim our rivers flowed,
The melody of waters filled
The fresh and boundless wood.
And torrents dashed and rivulets played,
And fountains sported in the shade.
These grateful sounds are heard no more,
The springs are silent in the sun,
The rivers, by the blackened shore,
With lessening currents run;
The realm our tribes are crushed to get
May be a barren desert yet.

The trees may outlive the memory of more than one of those in whose honor they were planted. But if it is something to make two blades of grass grow where only one was growing, it is much more to have been the occasion of the planting of an oak which shall defy twenty scores of Winters, or of an elm which shall canopy with its green cloud of foliage half as many generations of mortal immortalities. I have written many verses, but the best poems I have produced are the trees I planted on the hill-side which overlooks the broad meadows, scalloped and rounded at their edges by loops of the sinuous Housatonic. Nature finds rhymes for them in the recurring measures of the seasons. Winter strips them of their ornaments and gives them, as it were, in prose translation, and Summer reclothes them in all the splendid phrases of their leafy language.

What are these maples and beeches and birches but odes and idyls and madrigals? What are these pines and firs and spruces but holy hymns, too solemn for the many-hued raiment of their gay deciduous neighbors? Oliver Wendell Holmes: *Extract from Letter.*

The objects of the restoration of the forests are as multifarious as the motives which have led to their destruction, and as the evils which that destruction has occasioned. The planting of the mountains will diminish the frequency and violence of river inundations, prevent the formation of torrents; mitigate the extremes of atmospheric temperature, humidity, and precipitation; restore dried-up springs, rivulets, and sources of irrigation; shelter the fields from chilling and from parching winds; prevent the spread of miasmatic effluvia; and, finally, furnish an inexhaustible and self-renewing supply of material indispensable to so many purposes of domestic comfort, to the successful exercise of every act of peace, every destructive energy of war.

George P. Marsh, "*Man and Nature.*"

THE WAYSIDE INN—AN APPLE-TREE.

I HALTED at a pleasant inn,
As I my way was wending—
A golden apple was the sign,
From knotty bough depending.

Mine host—it was an apple-tree—
He smilingly received me,
And spread his choicest, sweetest fruit,
To strengthen and relieve me.

Full many a little feathered guest
Came through his branches springing;
They hopped and flew from spray to spray,
Their notes of gladness singing.

Beneath his shade I laid me down,
And slumber sweet possessed me;
The soft wind blowing through the leaves
With whispers low caressed me.

And when I rose, and would have paid
My host so open-hearted,
He only shook his lofty head—
I blessed him, and departed.

FROM THE GERMAN.

I LOVE thee in the Spring,
Earth-crowning forest! when amid the shades
The gentle South first waves her odorous wing,
And joy fills all the glades.

In the hot Summer time,
With deep delight, the somber aisles I roam,
Or, soothed by some cool brook's melodious chime
Rest on thy verdant loam.

But O, when Autumn's hand
Hath marked thy beauteous foliage for the grave,
How doth thy splendor, as entranced I stand,
My willing heart enslave!

WM. JEWETT PABODIE.

THE groves were God's first temples. Ere man learned
To hew the shaft and lay the architrave,
And spread the roof above them,—ere he framed
The lofty vault to gather and roll back
The sound of anthems; in the darkling wood,
Amidst this cool and silence, he knelt down,
And offered to the Mightiest solemn thanks
And supplication.

WILLIAM CULLEN BRYANT.

FOREST SONG.

A song for the beautiful trees,
A song for the forest grand,
The garden of God's own hand,
The pride of his centuries.
Hurrah! for the kingly oak,
For the maple, the forest queen,
For the lords of the emerald cloak,
For the ladies in living green.

For the beautiful trees a song,
The peers of a glorious realm,
The linden, the ash, and the elm,
So brave and majestic and strong.
Hurrah! for the beech tree trim,
For the hickory staunch at core,
For the locust, thorny and grim,
For the silvery sycamore.

A song for the palm, the pine,
And for every tree that grows,
From the desolate zone of snows
To the zone of the burning line.
Hurrah! for the warders proud
Of the mountain-side and vale,
That challenge the lightning cloud,
And buffet the stormy gale.

A song for the forest aisled,
With its Gothic roof sublime,
The solemn temple of Time,
Where man becometh a child,
As he listens the anthem-roll
Of the wind in the solitude,
The hymn that telleth his soul
That God is the Lord of the wood.

So long as the rivers flow,
So long as the mountains rise,
May the forests sing to the skies,
And shelter the earth below.
Hurrah! for the beautiful trees!
Hurrah! for the forest grand,
The pride of his centuries,
The garden of God's own hand.

PROF. W. H. VENABLE.

This song was written expressly for Cincinnati "Arbor Day," 1882.

THE wealth, beauty, fertility, and healthfulness of the country largely depend upon the conservation of our forests and the planting of trees. JOHN GREENLEAF WHITTIER: *Extract from Letter.*

SONG TO THE TREES.

I.

HAIL to the trees!
Patient and generous, mothers of mankind,
Arching the hills, the minstrels of the wind,
Spring's glorious flowers, and Summer's balmy tents,
A sharer in man's free and happier sense.
From early blossom till the north wind calls
Its drowsy sprites from beech-hid waterfalls,
The trees bless all, and then, brown-mantled, stand
The sturdy prophets of a golden land.

II.

Eden was clothed in trees; their glossy leaves
Gave raiment, food, and shelter; 'neath their eaves
Dripping with ruby dew the flow'rets rose
To follow man from Eden to his woes.
The silver rill crept fragrant thickets through,
The air was rich with life, a violet hue
Tangling with sunshine lit the waving scene,
'Twas heaven, tree-born, tree-lulled, enwreathed in green.

III.

Where trees are not, behold the deserts swoon
Beneath the brazen sun and mocking moon.
Where trees are not, the tawny torrent leaps,
A brawling savage from the crumbling steeps,
Where once the ferns their gentle branches waved,
And tender lilies in the crystal laved;
A brawling savage, plundering in a night,
The fields it once strayed through a streamlet bright.

IV.

What gardeners like the trees; their loving care
The daintiest blooms can deftly plant and rear.
How smilingly with outstretched boughs they stand
To shade the flowers too fragile for man's hand.
With scented leaves, crisp, ripened, nay, not dead,
They tuck the wild flowers in their moss-rimmed bed.
The forest nook outvies the touch of art,
The heart of man loves not like the oak's heart.

V.

O whispering trees, companions, sages, friends,
No change in you, whatever friendship ends;
No deed of yours the Eden link e'er broke;
Bared is your head to ward the lightning's stroke.
You fed the infant man, and blessed his cot,
Hewed from your grain; without you he were not,
The hand that planned you planned the future, too.
Shall we distrust it, knowing such as you?

VI.

And when comes Eden back? The trees are here,
In all their olden beauty and glad cheer.
Eden but waits the lifting of the night,
For man to know the true and will the right.
Whatever creed may find in hate a birth,
One of the heavens is this teeming earth;
"Of all its gifts but innocence restore,
And Eden," sigh the trees, "is at your door."

JOSEPH W. MILLER.

This poem was written expressly for Cincinnati "Arbor Day," 1882.

THE OAK.

A GLORIOUS tree is the old gray oak;
He has stood for a thousand years—
Has stood and frowned
On the trees around,
Like a king among his peers;
As around their king they stand, so now,
When the flowers their pale leaves fold,
The tall trees round him stand, arrayed
In their robes of purple and gold.
He has stood like a tower
Through sun and shower,
And dared the winds to battle;
He has heard the hail,
As from plates of mail,
From his own limbs shaken, rattle;
He has tossed them about, and shorn the tops
(When the storm has roused his might)
Of the forest trees, as a strong man doth
The heads of his foes in fight.

GEORGE HILL: *"Fall of the Oak."*

WHEN the sun begins to fling
His flaring beams, me, goddess, bring
To arched walks of twilight groves,
And shadows brown, that Sylvan loves,
Of pine or monumental oak.

MILTON.

'TIS beautiful to see a forest stand,
Brave with its moss-grown monarchs and the pride
Of foliage dense, to which the south wind bland
Comes with a kiss as lover to his bride;
To watch the light grow fainter, as it streams
Through arching aisles, where branches interlace,
Where somber pines rise o'er the shadowy gleams
Of silver birch, trembling with modest grace.

WHAT conqueror in any part of "life's broad field of battle" could desire a more beautiful, a more noble, or a more patriotic monument than a tree planted by the hands of pure and joyous children, as a memorial of his achievements?

What earnest, honest worker with hand and brain, for the benefit of his fellowmen, could desire a more pleasing recognition of his usefulness than such a monument, a symbol of his or her productions, ever growing, ever blooming, and ever bearing wholesome fruit?

Trees already grown ancient have been consecrated by the presence of eminent personages or by some conspicuous event in our national history, such as the Elm tree at Philadelphia, at which William Penn made his famous treaty with nineteen tribes of barbarians; the Charter Oak at Hartford, which preserved the written guarantee of the liberties of the Colony of Connecticut; the wide-spreading Oak tree of Flushing, Long Island, under which George Fox, the founder of the Society of Friends or Quakers, preached; the lofty Cypress tree in the Dismal Swamp under which Washington reposed one night in his young manhood; the huge French Apple tree near Ft. Wayne, Ind., where Little Turtle, the great Miami chief, gathered his warriors; the Elm tree at Cambridge, in the shade of which Washington first took command of the Continental army on a hot Summer's day; the Tulip tree on King's Mountain battlefield in South Carolina, on which ten bloodthirsty Tories were hung at one time; the tall Pine tree at Ft. Edward, N. Y., under which the beautiful Jane McCrea was slain; the magnificent Black Walnut tree, near Haverstraw on the Hudson, at which General Wayne mustered his forces at midnight, preparatory to his gallant and successful attack on Stony Point; the grand Magnolia tree near Charleston, S. C., under which General Lincoln held a council of war previous to surrendering the city; the great Pecan tree at Villere's plantation, below New Orleans, under which a portion of the remains of General Packenham was buried, and the Pear trees planted, respectively, by Governor Endicott, of Massachusetts, and Governor Stuyvesant, of New York, more than two hundred years ago.

These trees all have a place in our national history, and are inseparable from it because they were so consecrated. My eyes have seen all but one of them, and patriotic emotions were excited at the sight. How much more significant and suggestive is the dedication of a young tree as a monument.

BENSON J. LOSSING, Historian: *Extract from Letter.*

THE project of connecting the planting of trees with the names of authors is a beautiful one, and one certain to exert a beneficial influence upon the children who participate in these exercises. The institution of an "Arbor Day" is highly commendable from its artistic consequences, and can not fail to result in great benefit to the climate and to the commercial interests of the country when it becomes an institution of general adoption.

PROF. B. PICKMAN MANN, son of Horace Mann: *Extract from Letter.*

A LITTLE of thy steadfastness,
Rounded with leafy gracefulness,
Old oak, give me—
That the world's blast may round me blow,
And I yield gently to and fro,
While my stout-hearted trunk below,
And firm-set roots unshaken be.

LOWELL.

FROM the earth's loosened mould
The sapling draws sustenance and thrives;
Though stricken to the heart with Winter's cold,
The drooping tree revives.

The softly warbled song
Comes from the pleasant woods, and colored wings
Glance quick in the bright sun, that moves along
The forest openings.

When the bright sunset fills
The silver woods with light, the green slope throws
Its shadow in the hollows of the hills,
And wide the upland grows.

LONGFELLOW.

IT is a great pleasure to think of the young people assembling to celebrate the planting of trees, and connecting them with the names of authors whose works are the farther and higher products of our dear old Mother Nature. An Oriental poet says of his hero:

"Sunshine was he in a Wintery place,
And in midsummer coolness and shade."

Such are all true thinkers, and no truer monuments of them can exist than beautiful trees. Our word book is from the beech tablets on which men used to write. Our word Bible is from the Greek for bark of a tree. Our word paper is from the tree papyrus—the tree which Emerson found the most interesting thing he saw in Sicily. Our word library is from the Latin *liber*, bark of a tree. Thus literature is traceable in the growth of trees, and was originally written on leaves and wooden tablets. The West responds to the East in associating great writers with groups of trees, and a grateful posterity will appreciate the poetry of this idea as well while it enjoys the shade and beauty which the schools are securing for it.

MONCURE D. CONWAY: *Extract from Letter.*

IMPARTING to waste places more than their pristine beauty and associating the names of departed loved ones with our work is a poetic and sublime conception. It symbolizes our faith in a resurrection to a higher and better life when the hard struggles of this sin-cursed world are passed. GEN. SAMUEL F. CARY: *Extract from Letter.*

THEY who dwell beside the stream and hill
Prize little treasures there so kindly given:
The song of birds, the babbling of the rill,
The pure, unclouded light and aid of heaven.
They walk as those who seeing can not see,
Blind to this beauty even from their birth;
We value little blessings ever free;
We covet most the rarest things of earth.

But rising from the dust of busy streets
These forest children gladden many hearts;
As some old friend their welcome presence greets
The toil-worn soul, and fresher life imparts.
Their shade is doubly grateful when it lies
Above the glare which stifling walls throw back;
Through quivering leaves we see the soft blue skies,
Then happier tread the dull, unvaried track.

ALICE B. NEAL: "*Trees in the City.*"

THE FOREST FLOWERS.

OUR forests are fast disappearing. In their sheltering shade and the rich mold of their annually decaying leaves, the greater number of our loveliest plants are found; and when the ax comes, that cruel weapon that wars upon nature's freshness, and the noble oak, the elm, the beech, the maple, and the tulip-tree fall with a loud crash in the peaceful solitude, even the very birds can understand that a floral death-knell sounds through the melodious wilderness.

A number of our choicest plants are threatened with extinction; for as the woods are cleared away these tender offsprings, the pretty flowers, which we so dearly cherish, will perish utterly. It is, therefore, well to prevent as far as possible the destruction of our native forests, as well as to plant forest trees, if for no other purpose than the preservation of the little helpless, blooming beauties that adorn our woodland shades.

GUSTAVUS FRANKENSTEIN.

OF the infinite variety of fruits which spring from the bosom of the earth, the trees of the wood are greatest in dignity. Of all the works of the creation which know the changes of life and death, the trees of the forest have the longest existence. Of all the objects which crown the gray earth, the woods preserve unchanged, throughout the greatest reach of time, their native character. The works of man are ever varying their aspect; his towns and his fields alike reflect the unstable opinions, the fickle wills and fancies of each passing generation; but the forests on his borders remain to-day the same they were ages of years since. Old as the everlasting hills, during thousands of seasons they have put forth, and laid down their verdure in calm obedience to the decree which first bade them cover the ruins of the Deluge.

SUSAN FENIMORE COOPER: "*Rural Hours.*"

THE monarch oak, the patriot of the trees,
Shoots rising up, and spreads by slow degrees;
Three centuries he grows, and then he stays
Supreme in state; and in three more decays.

DRYDEN.

THE young oak grew, and proudly grew,
For its roots were deep and strong;
And a shadow broad on the earth it threw,
And the sunshine linger'd long
On its glossy leaf, where the flickering light
Was flung to the evening sky;
And the wild bird sought to its airy height,
And taught her young to fly.

MRS. E. OAKES SMITH: "*The Acorn.*"

A TREE, to the thoughtful and loving student of nature, suggests ideas of beauty and perfection to which the mind can not be lifted, save by a process of wondering admiration.

FRANCIS GEORGE HEATH.

ALAS, in how many places is the forest which once lent us shade nothing more than a memory! The grave and noble circle which adorned the mountain is every day contracting. Where you come in hope of seeing life, you find but the image of death. O, who will really undertake the defense of the trees, and rescue them from senseless destruction? Who will eloquently set forth their manifold mission, and their active and incessant assistance in the regulation of the laws which rule our globe? Without them, it seems delivered over to blind destiny, which will involve it again in chaos! The motive powers and purificators of the atmosphere through the respiration of their foliage, avaricious collectors to the advantage of future ages of the solar heat, it is they which pacify the storm and avert its most disastrous consequences. In the low-lying plains, which have no outlet for their waters, the trees, long before the advent of man, drained the soil by their roots, forcing the stagnant waters to descend and construct at a lower depth their useful reservoirs. And now, on the abrupt declivities, they consolidate the crumbling soil, check and break the torrent, control the melting of the snows, and preserve to the meadows the fertile humidity which in due time will overspread them with a sea of flowers.

And is not this enough? To watch over the life of the plant and its general harmony, is it not to watch over the safety of humanity?

The tree, again, was created for the nurture of man, to assist him in his industries and his arts. It is owing to the tree, to its soul, earth-buried for so many centuries, and now restored to light, that we have secured the wings of the steam-engine.

Thank Heaven for the trees! With my feeble voice I claim for them the gratitude of man.

MADAME MICHELET: "*Nature, or the Poetry of Earth and Sea.*"

O, WHO is there within whose heart
The love of noble manhood dwells,
Who feels the thrill of pleasure start
When other tongue the story tells

Of deeds sublime? with true eye sees
The beautiful in art and thought—
Dares stand before God's stately trees,
Declaring that he loves them not?

Companions of our childhood days!
Companions still, though grown we be!
Still through thy leaves the light breeze strays,
Whispering the same old songs to me.

. . . . . .

Dear forest! down thy aisles dim
Soft sweeps the zephyr's light caress;
Worthy indeed art thou of Him
Who made thee in thy loveliness.

Long may thy graceful branches wave,
Piercing with pride the balmy air;
Harm ne'er would come if I could save—
Fit objects of our love and care.

But though erect each noble form,
As year by year rolls swift along
Thou too, like man, must face the storm,
And fall—or live to be more strong.

Forever upward, day by day,
Patient thy growing branches turn;
Nearer the heavens each year alway—
May we the simple lesson learn—

Though few our years or many be,
It matters not the number given,
If we can feel that, like the tree,
Each year hath found us nearer heaven.

MAGGIE MAY WELSH, Lancaster, O.

Written for Cincinnati "Arbor Day" Celebrations.

WHAT a noble gift to man are the forests! What a debt of gratitude and admiration we owe for their utility and their beauty! How pleasantly the shadows of the wood fall upon our heads when we turn from the glitter and turmoil of the world of man! The winds of heaven seem to linger amid their balmy branches, and the sunshine falls like a blessing upon the green leaves; the wild breath of the forest, fragrant with bark and berry, fans the brow with grateful freshness; and the beautiful woodlight, neither garish nor gloomy, full of calm and peaceful influences, sheds repose over the spirit.

SUSAN FENIMORE COOPER: "*Rural Hours.*"

THE FOREST.

I LOVE thee when thy swelling buds appear,
And one by one their tender leaves unfold,
As if they knew that warmer suns were near,
Nor longer sought to hide from Winter's cold;
And when with darker growth thy leaves are seen
To veil from view the early robin's nest,
I love to lie beneath thy wooing screen,
With limbs by Summer's heat and toil oppress'd;
And when the Autumn wind has stripped thee bare,
And round thee lies the smooth, untrodden snow,
When naught is thine that made thee once so fair,
I love to watch thy shadowy form below,
And through thy leafless arms to look above
On stars that brighter beam when most we need their love.

JONES VERY: "*The Tree.*"

THE heave, the wave, and bend
Of everlasting trees, whose busy leaves
Rustle their songs of praise, while ruin weaves
A robe of verdure for their yielding bark,
While mossy garlands, full and rich and dark,
Creep slowly round them! Monarch of the wood,
Whose mighty scepters sway the mountain brood,
Shelter the winged idolaters of Day—
And grapple with the storm-god, hand to hand,
Then drop like weary pyramids away,
Stupendous monuments of calm decay.

JOHN NEAL.

WELCOME, ye shades! ye bowery thickets, hail!
Ye lofty pines! ye venerable oaks!
Ye ashes wild! Resounding o'er the steep!
Delicious is your shelter to the soul.

THOMSON.

MOST worthy of the oaken wreath
The ancients him esteemed,
Who, in a battle had from death
Some man of worth redeemed.

DRAYTON.

THERE oft the muse, what most delights her, sees
Long living galleries of aged trees,
Bold sons of earth, that lift their arms so high,
As if once they would invade the sky.
In such green palaces the first kings reigned,
Slept in their shade, and angels entertained;
With such old councilors they did advise,
And, by frequenting sacred groves, grew wise.

THE OAK.

With his gnarled old arms and his iron form,
Majestic in the wood,
From age to age, in sun and storm,
The live-oak long has stood;
And generations come and go,
And still he stands upright,
And he sternly looks on the world below,
As conscious of his might.

A song to the oak, the brave old oak,
Who hath ruled in the greenwood long?
Here 's health and renown to his broad green crown,
And his fifty arms so strong!
There 's fear in his frown, when the sun goes down,
And the fire in the west fades out;
And he showeth his might on a wild midnight,
When the storm through his branches shout.

. . . . . .

Then here 's to the oak, the brave old oak,
Who stands in his pride alone;
And still flourish he, a hale green tree,
When a hundred years are gone.

H. F. Chorley.

Oh! come to the woodlands, 't is joy to behold,
The new waken'd buds in our pathway unfold;
For Spring has come forth, and the bland southern breeze
Is telling the tale to the shrub and the trees,
Which, anxious to show her
The duty they owe her,
Have decked themselves gayly in emerald and gold.

Welcome, pure thoughts! welcome, ye silent groves!
These guests, these courts, my soul most dearly loves;
Now the winged people of the sky shall sing
My cheerful anthems to the gladsome Spring;
And if contentment be a stranger,—then
I 'll ne'er look for it, but in heaven again.

Sir Henry Wotton.

The oak, for grandeur, strength, and noble size,
Excels all trees that in the forest grow;
From acorn small, that trunk, those branches rise,
To which such signal benefits we owe.
Behold, what shelter in its ample shade,
From noontide sun, or from the drenching rain.
And of its timber stanch, vast ships are made,
To sweep rich cargoes o'er the watery main.

PROUD monarch of the forest!
That once a sapling bough,
Didst quail far more at evening's breath
Than at the tempest now.
Strange scenes have pass'd, long ages roll'd
Since first upon thy stem,
Then weak as osier twig, Spring set
Her leafy diadem.

To thee but little recks it
What seasons come or go;
Thou lov'st to breathe the gale of Spring
And bask in Summer's glow;
But more to feel the Wintry winds
Sweep by in awful mirth,
For well thou know'st each blast will fix
Thy roots more deep in earth.

Would that to me life's changes
Did thus with blessings come!
That mercies might, like gales of Spring
Cause some new grace to bloom!
And that the storm which scattereth
Each earth-born hope abroad,
Might anchor those of holier birth
More firmly on my God.

OH, ROSALIND! these trees shall be my books,
And in their barks my thoughts I'll character,
That every eye which in this forest looks
Shall see thy virtue witnessed everywhere.

SHAKESPEARE: *"As You Like It."*

TEACHERS will please give the pupils the following account of the way in which Mr. Morris came to write the poem, "Woodman, Spare that Tree." The poem should then be memorized by all the pupils, and recited or sung on "Arbor Day." Mr. Morris, in a letter to a friend, dated New York, February 1, 1837, gave in substance the following account. Riding out of town a few days since, in company with a friend, an old gentleman, he invited me to turn down a little, romantic woodland pass, not far from Bloomingdale. "Your object?" inquired I. "Merely to look once more at an old tree planted by my grandfather long before I was born, under which I used to play when a boy, and where my sisters played with me. There I often listened to the good advice of my parents. Father, mother, sisters—all are gone; nothing but the old tree remains." And a paleness overspread his fine countenance, and tears came to his eyes. After a moment's pause, he added: "Do n't think me foolish. I do n't know how it is: I never ride out but I turn down this lane to look at that old tree. I have a thousand recollections about it, and I always greet it as a familiar and well-remembered friend." These words were scarcely uttered when the old gentleman cried out, "There it is!" Near the tree stood a man with his coat off, sharpening an ax. "You 're not going to cut that tree down, surely?" "Yes, but I

am, though," said the woodman. "What for?" inquired the old gentleman, with choked emotion. "What for? I like that! Well, I will tell you. I want the tree for firewood." "What is the tree worth to you for firewood?" "Why, when down, about ten dollars." "Suppose I should give you that sum," said the old gentleman, "would you let it stand?" "Yes." "You are sure of that?" "Positive!" "Then give me a bond to that effect." We went into the little cottage in which my companion was born, but which is now occupied by the woodman. I drew up the bond. It was signed, and the money paid over. As we left, the young girl, the daughter of the woodman, assured us that while she lived the tree should not be cut. These circumstances made a strong impression on my mind, and furnished me with the materials for the song I send you.

WOODMAN, spare that tree!
Touch not a single bough!
In youth it sheltered me,
And I'll protect it now.
'T was my forefather's hand
That placed it near his cot;
There, woodman, let it stand;
Thy ax shall harm it not!

That old familiar tree,
Whose glory and renown
Are spread o'er land and sea,—
And wouldst thou hack it down?
Woodman, forbear thy stroke!
Cut not its earth-bound ties;
O, spare that aged oak,
Now towering to the skies!

When but an idle boy
I sought its grateful shade;
In all their gushing joy,
Here, too, my sisters played.
My mother kissed me here;
My father pressed my hand—
Forgive the foolish tear;
But let that old oak stand.

My heart-strings round thee cling,
Close as thy bark, old friend;
Here shall the wild-bird sing,
And still thy branches bend.
Old tree! the storm still brave!
And, woodman, leave the spot;
While I 've a hand to save,
Thy ax shall harm it not.

GEORGE P. MORRIS.

The following additional selections on trees were made by Prof. W. H. Venable.

If I could put my woods in song,
  And tell what's there enjoyed,
All men would to my garden throng,
  And leave the cities void.

In my plot no tulips blow—
  Snow-loving pines and oaks instead;
And rank the savage maples grow
  From Spring's faint flush to Autumn red.

My garden is a forest ledge,
  Which older forests bound;
The banks slope down to the blue lake-edge,
  Then plunge to depths profound.

EMERSON: "*My Garden.*"

My fugitive years are all hasting away,
And I must erelong be as lowly as they;
With a turf on my breast and a stone at my head,
Ere another such grove shall arise in its stead.

WILLIAM COWPER.

Oh! bear me then to vast embowering shades;
To twilight groves, and visionary vales;
To weeping grottoes, and prophetic glooms!
Where angel forms athwart the solemn dusk
Tremendous, sweep, or seem to sweep, along;
And voices, more than human, through the void,
Deep-sounding, seize the enthusiastic ear.

THOMSON: "*Autumn.*"

Here Nature does a house for me erect,
Nature, the wisest architect,
  Who those fond artists does despise
That can the fair and living trees neglect,
  Yet the dead timber prize.

COWLEY.

O, willow, why forever weep,
  As one who mourns an endless wrong?
What hidden woe can lie so deep?
  What utter grief can last so long?

Mourn on forever, unconsoled,
  And keep your secret, faithful tree!
No heart in all the world can hold
  A sweeter grace than constancy.

ELIZABETH A. ALLEN.

I CARE not how men trace their ancestry,
To ape or Adam; let them please their whim;
But I, in June, am midway to believe
A tree among my far progenitors—
Such sympathy is mine with all the race.

JAMES RUSSELL LOWELL.

NAY, doubt we not that under the rough rind,
In the green veins of these fair growths of earth,
There dwells a nature that receives delight
From all the gentle processes of life,
And shrinks from loss of being. Dim and faint
May be the sense of pleasure and of pain,
As in our dreams; but, haply, real still.

BRYANT: *"Among the Trees."*

Now saucy Phœbus' scorching beams,
In flaming Summer pride,
Dry-withering waste my foamy streams,
And drink my crystal tide.

Would, then, my noble master please,
To grant my highest wishes,
He 'll shade my banks wi' tow'ring trees
And bonnie spreading bushes.

Let lofty firs and ashes cool,
My lowly banks o'erspread,
And view, deep bending in the pool,
Their shadows' wat'ry bed.

Let fragrant birks, in woodbines drest
My craggy cliffs adorn;
And, for the little songster's nest,
The close embow'ring thorn.

ROBERT BURNS.

THE POPLAR FIELD.

THE poplars are felled; farewell to the shade,
And the whispering sound of the cool colonnade.
The winds play no longer and sing in the leaves,
Nor Ouse on his bosom their image receives.

Twelve years have elapsed since I first took a view
Of my favorite field, and the bank where they grew;
And now in the grass, behold, they are laid,
And the tree is my seat that once lent me a shade.

The blackbird has fled to another retreat,
Where the hazels afford him a screen from the heat,
And the scene where his melody charmed me before
Resounds with his sweet flowing ditty no more.

TIME made thee what thou wast, king of the woods;
And time hath made thee what thou art—a cave
For owls to roost in. Once thy spreading boughs
O'erhung the champaign; and the numerous flocks
That grazed it, stood beneath that ample cope
Uncrowded, yet safe sheltered from the storm.
No flock frequents thee now. Thou hast outlived
Thy popularity, and art become
(Unless verse rescue thee awhile) a thing
Forgotten, as the foliage of thy youth.

COWPER: "*Yardly Oak.*"

THE WOODLAND HALLO.

IN our cottage, that peeps from the skirts of the wood,
I am mistress, no mother have I;
Yet blithe are my days, for my father is good,
And kind is my lover, hard by.
They both work together beneath the green shade—
Both woodmen, my father and Joe;
Where I've listened whole hours to the echo that made
So much of a laugh or hallo.

From my basket at noon they expect their supply,
And with joy from my threshold I spring
For the woodlands I love, and the oaks waving high,
And Echo, that sings as I sing.
Though deep shades delight me, yet love is my food
As I call the dear name of my Joe;
His musical shout is the pride of the wood,
And my heart leaps to hear the hallo.

Simple flowers of the grove, little birds, live at ease,
I wish not to wander from you;
I'll still dwell beneath the deep roar of your trees,
For I know that my Joe will be true.
The trill of the robin, the coo of the dove,
Are charms that I'll never forego;
But, resting through life on the bosom of love,
Will remember the Woodland Hallo.

ROBERT BLOOMFIELD.

IN June 't is good to lie beneath a tree
While the blithe season comforts every sense,
Steeps all the brain in rest, and heals the heart,
Brimming it o'er with sweetness unawares.
Fragrant and silent as that rosy snow,
Wherewith the pitying apple tree fills up
And tenderly lines some last-year robin's nest.

LOWELL.

MUCH can they praise the trees so straight and hy,
The sayling pine, the cedar proud and tall;
The vine-propp elme, the poplar never dry;
The builder oake, sole king of forests all;
The aspine good for staves; the cypresse funerall;
The laurell, meed of mightie conquerors
And poets' sage; the firre that weepeth still;
The willow, worne of forlorne paramours;
The eugh obedient to the bender's will;
The birch for shaftes; the sallow for the mill;
The mirrhe, sweet, bleeding in the bitter wound;
The warlike beech; the ash for nothing ill;
The fruitful olive, and the platane round;
The carver holme; the maple, seldom inward sound.

SPENSER: "*Faerie Queen*," *Canto I.*

HAIL, old patrician trees so great and good!
Hail, ye plebeian under-wood!
Where the poetic birds rejoice,
And for their quiet nests and plenteous food
Pay with their grateful voice.

Hail, the poor Muses' richest manor-seat!
Ye country houses and retreat,
Which all the happy gods so love,
That for you oft they quit their bright and great
Metropolis above.

THE PINE TREE.

Old as Jove,
Old as Love,
Who of me
Tells the pedigree?
Only the mountains old,
Only the waters cold,
Only moon and star,
My coevals are.
Ere the first fowl sung,
My relenting boughs among,
Ere Adam wived,
Ere Adam lived,
Ere the duck dived,
Ere the bees hived,
Ere the lion roared,
Ere the eagle soared,
Light and heat, land and sea,
Spake unto the oldest tree.

EMERSON: "*Wood Notes.*"

THE PINE TREE.

The tremendous unity of the pine absorbs and moulds the life of a race. The pine shadows rest upon a nation. The northern peoples, century after century, lived under one or other of the two great powers of the pine and the sea, both infinite. They dwelt amidst the forests as they wandered on the waves, and saw no end nor any other horizon. Still the dark, green trees, or the dark, green waters jagged the dawn with their fringe or their foam. And whatever elements of imagination, or of warrior strength, or of domestic justice were brought down by the Norwegian or the Goth against the dissoluteness or degradation of the south of Europe were taught them under the green roofs and wild penetralia of the pine.

RUSKIN: "*Modern Painters.*"

THERE is a pleasure in a pathless wood.

BYRON.

THERE is a serene and settled majesty in woodland scenery that enters into the soul, and delights and elevates it, and fills it with noble inclinations.

WASHINGTON IRVING.

As the leaves of trees are said to absorb all noxious qualities of the air, and to breathe forth a purer atmosphere, so it seems to me as if they drew from us all sordid and angry passions, and breathed forth peace and philanthropy.

WASHINGTON IRVING.

THERE is something nobly simple and pure in a taste for the cultivation of forest trees. It argues, I think, a sweet and generous nature to have this strong relish for the beauties of vegetation, and this friendship for the hardy and glorious sons of the forest. There is a grandeur of thought connected with this part of rural economy. It is, if I may be allowed the figure, the heroic line of husbandry. It is worthy of liberal, and free born, and aspiring men. He who plants an oak, looks forward to future ages, and plants for posterity. Nothing can be less selfish than this.

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